検討経緯書

JSSS All (Chapter 1 to 10)

JICA STANDARD SAFETY SPECIFICATION FOR PROJECT IMPLEMENTATION UNDER JAPANESE ODA

Japan International Cooperation Agency (JICA)

30 June 2020

Prepared: NK
Issue: DFR1
Date: 30/06/2020

ACKNOWLEDGEMENTS

JICA have referred to other publications during the preparation of this document and parts of such other publications have been used in the preparation hereof. JICA acknowledges and gives credit to these sources/publications which include:

1) Japanese Acts, Orders and Ordinances including:

Industrial Safety and Health Act

Order for Enforcement of Industrial Safety and Health Act

Ordinance on Industrial Safety and Health

Safety Ordinance for Cranes

Ordinance on Safety and Health of Work under High Pressure

Ordinance on Prevention of Anoxia, etc.

Ordinance on Prevention of Hazards Due to Dust

Explosives Control Act

Order for Enforcement of Explosives Control Act

Ordinance on Explosives Control

2) OSHA Standard Part 1926 Safety and Health Regulations for Construction", as written in Code of Federal Regulation (29 CFR) and published by the Occupational Safety and Health Administration, U.S. Department of Labor.

3) Construction (Design and Management) Regulations 2015, published by the UK Health and Safety Executive.

4) Conditions of Contract for Construction for Building and Engineering Works Designed by The Employer (Multilateral Development Bank Harmonised Edition June 2010) published by Fédération Internationale des Ingénieurs-Conseils (FIDIC)

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JICA STANDARD SAFETY SPECIFICATION (JSSS)

Table of Contents

CHAPTER 1: GENERAL REQUIREMENTS

~~The following are presently excluded and will be covered in JSSS Second Edition:~~

~~Chapter 11: Railway Works~~
~~Chapter 12. Road Works~~
~~Chapter 13. Bridge Works~~
~~Chapter 14. Tunnelling Works~~
~~Chapter 15. Dam Works~~
~~Chapter 16. Demolition and Alteration Works~~

コメントの追加 [J1]: 現時点では未定のため削除とします。

CHAPTER 1: GENERAL REQUIREMENTS

1.1 Safety Declaration

1.1.1 Adopting the slogan “SAFETY FIRST”, the Contractor shall proactively aim to achieve “Zero-Accident” by applying the highest achievable standards of health and safety management.

1.1.2 A Safety Declaration shall be submitted with the Bid, declaring the Bidder’s commitments and obligations, in accordance with JSSS Annex 1.3 [*Additional Contractor Forms*], Form JSSS/BSD - Bidder’s Safety Declaration,

1.2 General Reference Notes

1.2.1 For Definitions, abbreviations and standards contained in JSSS, refer to JSSS Annex 1.1 [*Definitions and Abbreviations*].

1.2.2 The following further general reference notes apply to the content of JSSS:

(1) References to “Bid” and “Contract” and to “Bidder” and “Contractor” shall be interchangeable according to the context of their use. “Bid” and “Bidder” shall become “Contract” and “Contractor” after the Contract Agreement has been executed.

(2) References to “Laws of the Country” shall include all safety standards under such Laws and shall also include references to Laws of any other jurisdiction ~~that may be stated in the Contract Data~~.

(3) Any reference to “Safety” unless otherwise evident from the text shall also be construed as reference to “Health and Safety”.

(4) Any reference to academic, educational or vocational qualification within this document, shall mean a valid qualification demonstrated by a certified true copy of a diploma, degree, or other official certification issued by an acknowledged educational institution of the Country or an equivalent alternative certification issued by an acknowledged educational institution of another country.

(5) Unless otherwise stated in JSSS, any reference in JSSS to the Site, shall also be deemed to include other places (if any) where the Contractor intends to execute or is executing the Works including for example offsite storage, fabrication and assembly areas and any other working areas outside the Site boundary.

(6) JSSS requires the provision of safety management services and facilities by the Contractor to Contractor’s Personnel and unless otherwise stated this shall also be deemed to include the provision by the Contractor of the same services and facilities (including for example training, accident response, healthcare, records, reports, control of hazards and risks, use of Temporary Works, and the like) to any ~~subcontractors~~Subcontractors, suppliers and others for whom the Contractor is responsible including Employer’s Personnel and all other persons that are entitled to be on the Site.

(7) Any reference in JSSS to “relevant authority” or “relevant authorities” shall mean one or more legally constituted public authorities that own or have legal jurisdiction over the work or property concerned.

(8) JSSS shall form a part of the Contract for the Works and therefore the definitions contained in the Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer, Multilateral Development Bank Harmonised Edition June 2010, General Conditions together with the Particular Conditions Part A - Contract Data and Part B - Specific Provisions, as applied to that Contract, apply equally and are used in JSSS.

Unless specified otherwise or instructed by the Engineer, the issue of JSSS to be used for the Contract shall be that which is applicable at the Base Date.

コメントの追加 [J2]: 2 章以降との横並びをとる意味で、Section レベルでのタイトルは全て大文字にする。以下、以下、1 章を通じて同じ

コメントの追加 [岡本3]: 1.1.6.5 では Contract Data に記載するような立て付けにはなっていない。PSS に記載するようにすべき。

1.3 Incorporation of JSSS into the Contract

1.3.1 JSSS shall form a part of the Safety Specification which, in turn forms a part of the Specification. The Safety Specification shall have priority over the other parts of the Specification in respect of health and safety matters. Within the Safety Specification, the Particular Safety Specification shall have priority over JSSS.

1.3.2 The Annexes to Chapter 1: General Requirements shall be read and construed as an integral part of JSSS.

1.4 Compliance with JSSS and Other Regulations

1.4.1 JSSS specifies the minimum health and safety requirements to be complied with by the Contractor throughout the execution of the Works.

1.4.2 JSSS shall not limit the Contractor's statutory or regulatory duties and responsibilities under the Laws of the Country and/or the specific health and safety requirements of the Contract.

1.4.3 The Contractor shall comply fully with the requirements of the Safety Specification.

1.4.4 If there are no or insufficient safety provisions in the Laws of the Country, in JSSS or in the Particular Safety Specification for the particular part of the Works, the Contractor shall propose suitable internationally acceptable safety regulations for the Engineer's consent.

1.4.5 Specified Standards

(1) Unless otherwise instructed by the Engineer, a reference to any standard (hereinafter deemed to include specified safety regulations or codes) shall mean a reference to the latest issued edition of that standard as at the Base Date ~~of the Contract~~.

(2) Any standard specified in JSSS may be substituted with an equivalent alternative which, unless stated otherwise, shall mean that an alternative is acceptable but only after the Contractor has submitted a formal request with supporting particulars to the Engineer and has obtained the consent of the Engineer who shall give such consent only if, in his opinion, the alternative is internationally acceptable and that it provides an equivalent or higher standard than the standard specified.

(3) Application of detailed parts of any standards specified in JSSS may be waived at the formal request of the Contractor, only if the Contractor justifies with supporting particulars that those detailed parts are not relevant to the Contract and the Engineer gives his consent to such Contractor's request.

(4) Where JSSS refers to the standards of other countries, such reference is only to the technical requirements contained in such standards and not to any related ~~laws~~ Laws or legal enforceability of any of those ~~other~~ countries.

1.4.6 Where there is any reference to OSHA and unless otherwise evident from the text, the words "team leader", "on-site supervisor", "on-site supervision", "field superintendent", "work chief" and the like shall be collectively construed as reference to the appropriate member of the Contractor's Personnel, any reference to the "safety and health manager of the Contractor" and the like shall be construed as reference to the HSO and "The construction plan and safety and health plan", shall be construed as the "Safety Plan".

1.4.7 If any ambiguity or discrepancy is found in or between the various Chapters of JSSS or any reference documents and JSSS, the Engineer shall issue any necessary clarification or instruction. For the purposes of interpretation:

(1) The requirements of Chapter 1: General Requirements, shall prevail over the requirements of other Chapters of the document.

(2) JSSS Chapters 2 to 6 contain requirements which are of general application and the content of each shall apply to content of all others unless otherwise stated or unless the context is otherwise clear.

コメントの追加 [岡本4]: Non-native にわかりやすく、以下の通りとしてください。

Standards specified in JSSS can be substituted with an equivalent alternative in following manner;
(a) The Contractor submits a formal request with particulars to the Engineer, and
(b) The Engineer gives a consent to the substitution, only if he considers such alternative is internationally acceptable and equivalent or higher than the standard in JSSS.

コメントの追加 [岡本5]: Legality？

1.4.8 Unless otherwise stated in JSSS or in the Particular Safety Specification, ~~The~~ the Contractor shall comply with the requirements of JSSS throughout the execution of the Contract~~the Time for Completion and the Defects Notification Period~~.

~~Unless otherwise specified in the Particular Safety Specification, the Contractor's obligations to provide temporary services and facilities shall finish at the end of the Time for Completion.~~

1.4.9 The Contractor shall fully inform his personnel, his Subcontractor~~'~~s, suppliers and sub-consultants and all other parties who are associated with the Works of the existence, content, purpose and objectives of JSSS.

1.5 Contractor's Safety Management System

1.5.1 The Contractor shall institute a health and safety management system in accordance with ISO 45001~~ or an equivalent alternative~~.

1.5.2 Alternatively, the Contractor may institute his own safety management system and regularly conduct audits in accordance with JSSS 1.17 [*Compliance Monitoring and Auditing*].

1.5.3 The safety management system shall be proposed as a part of the Contractor's Safety Plans to the Engineer for his consent.

1.6 Checking and Validation of Submissions

1.6.1 ~~In accordance with GC 4.9 [*Quality Assurance*] t~~The Contractor shall demonstrate that his internal procedures for checking and validation of all submissions properly function through written confirmation and signature of each of the Contractor's responsible personnel, including for example the Contractor's Representative, HSO, Temporary Works coordination, design and supervision staff and any independent checkers as appropriate. This requirement relates to all submissions for the safety,~~compliance with the Contract by including evidence of his own internal prior review, check and approval or agreement of all submissions~~ including Safety Plans, Method Statements, Temporary Works (such as drawings, designs and calculations) and of all supporting documents~~, through written confirmation and signature of each of the Contractor's responsible personnel, including for example the Contractor's Representative, HSO, Temporary Works coordination, design and supervision staff and any independent checkers as appropriate.~~

1.7 Contractor's Safety Plans

1.7.1 The Contractor shall prepare Safety Plans for the Works showing the Contractor's proposed health and safety management policies, systems and plans specifically prepared for all parts of the Works~~, the Site and other places (if any) where the Contractor intends to execute the Works~~.

1.7.2 The Safety Plans shall set out or refer to all the health and safety requirements:

(1) That are stated in JSSS.

(2) That comply with the Contractor's health and safety obligations under the Laws of the Country and the Contract.

(3) That are necessary to effect and maintain a healthy and safe working environment for all Contractor's Personnel.

1.7.3 The Contractor shall be required to prepare and submit the Safety Plans principally at three stages:

(1) Bid Stage Safety Plan (Outline Overall Safety Plan).

(2) ~~Commencement Stage~~Baseline Safety Plan (Updated Bid Stage Safety Plan).

(3) Particular Safety Plans (Separate plans or updated Baseline Safety Plan)~~(Updated separate plans if necessary for particular parts of the Works~~.

1.7.4 The Safety Plans shall ultimately provide an accurate and comprehensive description of the Contractor's arrangements to ensure that health and safety management is maintained at a high

コメントの追加 [伊藤6]: 例によって文章が長すぎて Non-native に分かりにくいです。

コメントの追加 [岡本7]: FIDIC では Baseline を使用することが普通。
Baseline Safety Plan と呼称

level.

1.7.5 Submission of any Safety Plan and inclusion in the Bid or Contract or any further submission to the Engineer, shall not place any limit upon the Contractor's obligations. Any additional requirements as determined by the Contract or consequent to instructions of the Engineer or by requirements at the Site, shall be complied with by the Contractor under his own responsibility.

1.7.6 Bid Stage Safety Plan:

(1) This shall be an outline plan, containing indicative content for all of the subjects listed in JSSS Annex 1.2 [*Content of Bid Stage Safety Plan*].

(2) The plan shall demonstrate that the Bidder has a clear understanding of the health and safety requirements for the Works and contain ~~clear and~~ sufficient detail of each item to indicate the Bidder's intentions, so that this can be understood and properly evaluated.

1.7.7 ~~Commencement Stage Safety Plan~~Baseline Safety Plan

(1) This shall be submitted within twenty-eight (28) days after the Commencement Date ~~and not less than twenty-eight (28) days before commencing any work at the Site~~.

(2) This shall be an updated Safety Plan for the whole of the Works showing the Contractor's proposed health and safety management policies, systems and plans etc. specifically prepared for all parts of the Works~~, the Site and other places (if any) where the Contractor intends to execute the Works~~.

(3) The ~~Commencement Stage Safety Plan~~Baseline Safety Plan shall be based upon the Bid Stage Safety Plan, further developed as necessary by the HSO to provide a comprehensive overall Safety Plan demonstrating the Contractor's intended compliance with the Contract.

1.7.8 Particular Safety Plans

(1) These shall be prepared as necessary to suit changing circumstances or conditions at the Site, or following the issue of ~~later~~ Method Statements, or where considered necessary by the HSO or when required by the Engineer.

1.7.9 Procedures for Submission and Review

(1) The Contractor shall submit the Baseline ~~Commencement Stage~~ Safety Plan and the Particular Safety Plans showing details of the health and safety arrangements which the Contractor proposes to adopt for the execution of the Works or any part of the Works.

(2) The Contractor shall submit:

(a) the ~~Commencement Stage Safety Plan~~Baseline Safety Plan in accordance with JSSS 1.7.7 [~~*Commencement Stage Safety Plan*~~*Baseline Safety Plan*]; and

(b) t~~T~~he Particular Safety Plans by the date fourteen (14) days prior to the commencement of each particular part of the Works where sufficient detail has not been included in the ~~Commencement Stage Safety Plan~~Baseline Safety Plan and/or within fourteen (14) days after the date of the Engineer's request.

(3) Requirements for response (if any) by the Engineer and any re-submission by the Contractor and, shall be as follows:

(a) The Engineer may review the Safety Plans and may give notice of non-compliance to the Contractor stating the extent to which the Safety Plan does not comply with the Contract. Within fourteen (14) days after receiving any such notice the Contractor shall rectify any non-compliance and resubmit to the Engineer;

(b) If the Engineer gives no such notice of non-compliance for the original Safety Plan within twenty-one (21) days of the date of receipt or for the resubmitted within fourteen (14) days of receipt, the Contractor shall proceed in accordance with the

コメントの追加 [大場8]: These double limitations are sometimes very difficult or almost impossible to follow. If a contractor intends to erect a flag pole at the site on the commencement day, he must have submitted the Baseline Safety Plan 28 days before the Commencement day.

Safety Plan subject to complying with his other obligations under the Contract; and

(c) ~~For Contractor resubmissions following receipt of a notice of non-compliance, the Engineer may give notice to the Contractor stating the extent to which the resubmission does not comply with the Contract. Within fourteen (14) days after receiving this notice the Contractor shall rectify such non-compliance. If the Engineer gives no further notice of non-compliance within fourteen (14) days of the date of receipt of the resubmission, the Contractor shall proceed in accordance with the resubmitted Safety Plan subject to his other obligations under the Contract.~~

1.7.10 ~~The Contractor shall, as stated in JSSS and as the Engineer may reasonably require, maintain records and make reports in compliance with the applicable health and safety regulations and Laws) concerning the health and safety of any persons entitled to be on the Site.~~ The Contractor shall maintain records and make reports in accordance with JSSS and the applicable health and safety regulations, and further comply with any reasonable requests by the Engineer (if any).

1.7.11 Compliance with the Safety Plan and JSSS shall not relieve the Contractor from any duty, obligation or responsibility under or in connection with the Contract.

1.7.12 The Contractor shall also consider the opinions of his workers ~~and other Contractor's Personnel~~ in preparing Safety Plans or updated Safety Plans.

コメントの追加 [岡本9]: Take consideration of the opinions of his workers in …

1.8 Risk Assessment

1.8.1 In performing risk assessments, the Contractor shall find and correct all potential risks and hazards primarily by trying to eliminate or reduce such risks and hazards through making feasible changes in working conditions rather than relying on PPE.

1.8.2 The Contractor shall fully inform all Contractor's Personnel of ~~all~~ hazards and risks on the Site.

1.8.3 The procedural flow of risk assessment shall be as follows.

(1) Identifying hazards.

(2) Evaluating risks.

(3) Determining measures of risk reduction or elimination.

1.8.4 The procedural flow for risk reduction measures shall be as follows with earlier listed items having higher priority:

(1) Removal of hazards such as eliminating dangerous methods of construction.

(2) Changing to a safer construction method and alternating to low risk processes, operations, materials or equipment.

(3) Engineering measures.

(4) Management measures including improving skills with additional training.

(5) Use of PPE.

1.9 Contractor's Method Statements

1.9.1 The Contractor shall prepare Method Statements for all parts of the Works with details of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works ~~and any parts of the Works~~.

1.9.2 Method Statements shall be developed taking account of the results of risk assessment in accordance with JSSS 1.8 [*Risk Assessment*] and include details of all Permanent Works and Temporary Works with supporting documents such as:

(1) Studies, investigations and designs.

(2) Structural calculations and any other calculations.

(3) Specifications and technical details.

(4) Proposed construction procedure, sequence and method.

(5) Construction resources including superintendents, workers, Operation Leaders and Contractor's Equipment.

(6) Inspection and monitoring plan.

1.9.3 The Contractor shall demonstrate in the Method Stetements that he has put ~~The preparation of Method Statements shall indicate that the Contractor has put~~ internal procedures in place to encourage the systematic approach to performing the Works and in an efficient, safe and environmentally compliant manner.

1.9.4 ~~Whenever required by the Engineer, t~~The Contractor shall submit Method Statements showing details of the arrangements and methods which the Contractor proposes to adopt for the execution of any part of the Works. Whenever the Engineer requires further information, the Contractor shall submit the required information within fourteen (14) days of the request.~~The Contractor shall submit the requested information within fourteen (14) days of the date of the Engineer's request.~~

Requirements for submission by Contractor and response (if any) by the Engineer to Method Statements, shall be as follows:

(1) The Engineer ~~may~~ reviews the Method Statements and ~~may~~ gives a notice of non-compliance to the Contractor stating the extent to which the Method Statements do not comply with the Contract. Within fourteen (14) days after receiving any such notice the Contractor shall rectify any non-compliance and resubmit to the Engineer.

(2) If the Engineer gives no such notice of non-compliance for the original Method Statement within twenty-one (21) days of the date of receipt or for the resubmitted within fourteen (14) days of receipt, the Contractor shall proceed in accordance with the Method Statement ~~subject to complying with his other obligations under the Contract~~.

~~(3) For Contractor resubmissions following receipt of a notice of non compliance, the Engineer may give notice to the Contractor stating the extent to which the resubmission does not comply with the Contract. Within fourteen (14) days after receiving this notice the Contractor shall rectify such non compliance. If the Engineer gives no further notice of non compliance within fourteen (14) days of the date of receipt of the resubmission, the Contractor shall proceed in accordance with the resubmitted Method Statement subject to his other obligations under the Contract.~~

~~(4)~~(3) The Contractor shall submit a revised Method Statement whenever required by the Engineer or when any previous Method Statement for any part of the Works is inconsistent with actual conditions or requirements prevailing at the Site.

~~(5)~~(4) The Method Statement shall be revised as necessary by the Contractor or the HSO and each revision shall be submitted promptly to the Engineer.

1.10 Engineer's Safety Representative

1.10.1 The Engineer may delegate his power and authority to any of his assistants at the Site who shall act as the Engineer's health and safety representative for the purpose of complying with any health and safety obligations under JSSS.

1.10.2 The terms of the appointment shall be in accordance with GC 3.2 [*Delegation by the Engineer*].

1.10.3 Whenever the term "Engineer" is used in JSSS this shall be deemed to include the resident engineer or any other assistant of the Engineer if so appointed in accordance with the terms of their delegated authority.

1.11 Safety Compliance Instructions from the Engineer

1.11.1 Without affecting or diminishing the Contractor's responsibility under GC 4.1 [*Contractor's General Obligations*] and to ensure the adequacy, stability and safety of all Site operations and

of all methods of construction, the Engineer shall observe the Contractor's performance at the Site and if in his opinion the Contractor is failing or has failed to carry out any part of the Works in accordance with the Safety Plan or other health and safety requirements of the Contract, the Engineer may give notice and instruct the Contractor to take necessary corrective and preventive measures to comply with the Contract.

1.11.2 If any part of the Works is considered by the Engineer to pose a danger and which in his opinion could result in an accident, the Engineer may instruct the Contractor to suspend such part of the Works under GC 8.8 [*Suspension of Work*] until the Contractor has advised the Engineer of the proposed corrective and preventive measures, obtained the Engineer's consent and implemented such measures to ensure that such danger is eliminated~~no further risk exists~~.

1.11.3 If an accident has occurred, the Engineer may instruct the Contractor to suspend the Works or any part of the Works under GC 8.8 [*Suspension of Work*] and not allow ~~w~~resuming Works ~~to recommence~~ resume until such time as:

(1) The cause has been investigated and established by the Contractor.

(2) Corrective and preventive measures have been formulated by the Contractor and proposed to the Engineer.

(3) The Engineer's consent has been obtained for such measures.

(4) The measures have been implemented to ensure that no such accident can reoccur.

1.11.4 The actions arising as above ~~irrespective of the issue of any action or instruction by the Engineer,~~ shall be deemed to be the responsibility of the Contractor~~.~~, irrespective of the issue of any action or instruction by the Engineer.

1.12 Health and Safety Officer at the Site (HSO)

1.12.1 ~~For the purposes of interpretation under JSSS, the reference to "accident prevention officer at the Site" in GC 6.7[*Health and Safety*], shall be construed as "Health and Safety Officer at the Site".~~

1.12.2 Requirements for the HSO:

(1) The Contractor shall assign the HSO at ~~upon~~ the Site ~~of the Works~~, on or before the Commencement Date.

~~(1)~~(2) The Contractor shall ensure that the Contractor's Personnel respect instructions issued by HSO in the health and safety aspects.

~~(2)~~(3) If the named person is for any reason unavailable or if the appointed person fails to act as HSO and is removed from the Site ~~of the Works under GC 6.9 [*Contractor's Personnel*], or if the person resigns and/or leaves the employment of the Contractor at the Site~~, the Contractor shall submit the name and particulars of a suitable and equally experienced and qualified replacement to the Engineer for his consent.

~~(3)~~(4) The HSO shall be an employee of the Contractor or a specialist health and safety consultant and unless otherwise specified in the Particular Safety Specification, the HSO shall be assigned full time upon the Works ~~and responsibilities, authority and duties shall be in accordance with GC 6.7 [*Health and Safety*]~~.

~~(4)~~(5) The Contractor shall not revoke the appointment of the HSO or appoint a replacement without the prior consent of the Engineer.

~~(5) The HSO shall possess appropriate educational qualification for such position and also (if so required by the Laws of the Country) shall be licensed or registered in the Country and perform such duties as are legally mandated.~~

(6) The HSO shall where possible be fluent in the ruling language of the Contract and also the language for communications stated in the Contract as defined in GC 1.4 [*Law and*

コメントの追加 [岡本10]: Risk never disappears.

コメントの追加 [岡本11]: Is this term appropriate?

コメントの追加 [岡本12]: May?

コメントの追加 [YM13]: GC6.7 の accident prevention officer と HSO が同一という点の説明を Annex の definition の（３）に移動させて、この部分は削除。

Language], it is acceptable for the HSO to use a translator for either or both of these languages.

(7) The HSO shall possess appropriate educational qualification for such position and (if so required by the Laws of the Country) shall be licensed or registered in the Country and perform such duties as are legally mandated.

~~(6)~~(8)

~~(7)~~(9) Where there is no ~~legal~~ requirement under the Laws of the Country and ~~unless otherwise specified~~ in the Particular Safety Specification, the HSO shall have appropriate academic, educational or vocational qualification such as:

(a) an International Diploma issued by the National Examination Board in Occupational Safety and Health (NEBOSH) in UK; or

(b) a ~~C~~certification as a Certified Safety Professionals (CSP) by the Board of Certified Safety Professionals (BCSP) in USA; or

(c) an equivalent alternative internationally recognised qualification covering health and safety, and risk management.

~~(8)~~(10) Unless otherwise specified in the Particular Safety Specification, the HSO shall also have minimum five (5) years' work experience in construction of which minimum two (2) years shall be in health and safety management and whom the Contractor considers is qualified and able to perform the duties subject to receiving the consent of the Engineer.

1.12.3 Supporting Personnel

(1) The Contractor shall also appoint such further supporting personnel as the HSO may from time to time deem necessary or as may be instructed by the Engineer, to permit the HSO to perform his duties.

(2) Such further supporting personnel may include Operation Leaders and/or other senior specialist and qualified Contractor's Personnel.

(3) Irrespective of any such appointment the HSO shall remain singularly responsible for the actions of such supporting personnel in terms of health and safety management.

(4) Any reference in JSSS to the HSO performing inspections or the like for the health and safety aspects of any parts of the Works, shall be understood to include any inspections performed by any of these supporting personnel on behalf of the HSO and for which the HSO shall remain responsible.

(5) The HSO shall prepare an internal procedure for the management of his supporting personnel, to ensure that:

(a) Supporting personnel are made aware of the requirements for any inspection and the details thereof;

(b) Supporting personnel immediately advise the HSO of any unsafe conditions with recommendations to prohibit the start or to stop or to change safety practices for the particular work; and

(c) Communications and submissions between HSO and supporting personnel are efficient, timely and clear.

Following implementation and compliance with the above procedure, the HSO shall sign all inspection records as if the inspection has been carried out by the HSO.

(6) Where the Works or any part of the Works is to be performed in shifts or in excess of normal working hours, or over an extensive working area or where major works are being undertaken simultaneously, or like circumstances, the Contractor shall appoint additional qualified supporting personnel for the HSO all as necessary to ensure that the HSO is

always able to perform his duties efficiently and effectively and so that health and safety management is not adversely affected.

1.12.4 Inspections

(1) The HSO shall be responsible for ensuring:

(a) That all working areas are inspected on a regular basis (at least once every working day or as otherwise required by JSSS) to detect if any unsafe practices, works or conditions exist and that all required safety measures are in place;

(b) That if such unsafe practices, works or conditions are found to exist, then to immediately issue instructions to all affected persons and immediately implement corrective measures in cooperation with such personnel or if this is not possible then to temporarily stop all construction activity on that part of the Works until such corrective action has been taken; and

(c) That all inspection requirements of JSSS are complied with including the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

(2) Any site inspections attended by the HSO, may also include the attendance of the Engineer at the option of the Engineer.

1.13 HSO - Scope of Duties and Authority

1.13.1 The HSO shall devote his full time and attention to maintaining health and safety upon the Works and protecting against accidents.

1.13.2 The particular scope of duties and authority of the HSO shall cover (but shall not be limited to) the following:

(1) Health and Safety Management Work:

(a) Preparation and submission of Safety Plans, implementation, evaluation, improvement and revision thereof;

(b) Preparation of monthly schedule of health and safety management activities, informing the Contractor's Personnel;

(c) Regular (daily) inspections of the Works at the Site to ensure the Contractor's compliance with the Safety Plan~~, Instructions and other measures~~;

(d) Temporarily stopping the Works or any part of the Works following any accident or where the HSO considers it unsafe to continue or where there is unsafe behaviour or practices of the Contractor's Personnel or any non-compliance with the Safety Plan ~~Instructions and other measures~~;

(e) Temporarily stopping the Works or any part of the Works where the Engineer so instructs in accordance with JSSS 1.11 [*Safety Compliance Instructions from the Engineer*];

(f) Investigating accidents, establishing cause, formulating and implementing preventive measures to avoid risk and prevent reoccurrence;

(g) Preparing proposals, reporting and consulting with the Engineer, especially when an accident occurs or any risk or hazardous situation is likely;

~~(h) Appointment of further supporting personnel (refer to JSSS 1.12.3 [*Supporting Personnel*]);~~

~~(i)~~(h) Instructing ~~and training~~ Operation Leaders in the health and safety aspects of their work including requirements for inspection and confirmation of results to HSO;

~~(j)~~(i) Instructing the Contractor's Personnel to take improvement measures for

コメントの追加 [岡本14]: （１）は不要(2)がないので

コメントの追加 [YM15]: Contradicted with 1.12.3(1)

maintaining health and safety and preventing accidents;

~~(k)~~(j) Assisting with the selection and assignment of workers and other Contractor's Personnel, including ascertaining the physical and mental health, age and capability in consideration of the nature of work to be carried out;

~~(l)~~(k) Planning and implementation of various training and education implementation plans;

~~(m)~~(l) Creating and implementing procedures for monitoring and maintaining accident and safety statistics, including fatalities, lost time records and near-miss cases;

~~(n)~~(m) Preparing regular internal and external reports on health and safety activities; and

~~(o)~~(n) Hazard prediction activity.

1.14 Procedure for Resuming the Works

1.14.1 If any part of the Works have been suspended due to safety reason whether the Engineer has instructed a suspension under JSSS 1.11 [*Safety compliance Instructions from the Engineer*] or otherwise~~If the Engineer has issued an instruction under JSSS 1.11 [*Safety Compliance Instructions from the Engineer*] or if the HSO has temporarily stopped the Works or any part of the Works in accordance with JSSS 1.13 [*HSO - Scope of Duties and Authority*]~~, then, unless otherwise instructed by the Engineer, the procedure for resuming the Works or any part of the Works, shall be as follows:

(1) The Contractor (represented by the HSO) shall investigate and establish the cause, formulate preventive measures to ensure that the risk is avoided and accident cannot occur/reoccur.

(2) The Contractor (represented by the HSO), shall prepare and submit his proposal describing the investigation, cause and preventive measures to the Engineer.

(3) The Engineer may review the Contractor's proposal and may give notice of non-compliance to the Contractor stating the extent to which the proposal does not comply with the Contract. Within seven (7) days after receiving any such notice the Contractor shall rectify such non-compliance and resubmit to the Engineer.

(4) If the Engineer gives no such notice of non-compliance for the original proposal within seven (7) days of the date of receipt or for the resubmitted proposal within seven (7) days of receipt, the Contractor shall resume the Works or part thereof in accordance with the proposal~~ subject to complying with his other obligations under the Contract~~, by giving three (3) days' notice in writing of the resumption date.

To be proactive, the Engineer may give consent at any stage within the above stated time scales.

(5) The Contractor resumes the Works or part of the Works on the due date.

(6) The Contractor verifies the effectiveness of the preventive measures and informs the Engineer.

(7) The Contractor carries out a risk assessment and revises the Safety Plan and Method Statements as necessary.

1.15 Contractor's Safety Management Activities

1.15.1 The Contractor shall faithfully implement the Safety Plan performing all necessary management activities to ensure total compliance.

1.15.2 In addition to the tasks of the HSO described above, the Contractor's health and safety management activities shall include (but are not limited to):

(1) Overall Safety Management Activities:

(a) Instruction on safety matters in the ~~Arranging, chairing, attending meetings as described above and other internal Contractor meetings including~~ Toolbox Meetings (TBM);

(b) ~~Attending p~~Pre-work meetings, ~~pre-start meetings,~~ schedule meetings and other internal meetings; and

(c) Monitoring the implementation of the Safety Plan.

(2) Daily Safety Management of Contractor's Personnel:

(a) Instruction and management on health and safety at general morning meetings, pre-work meetings, TBM;

(b) Providing specific advice and instructions to all Contractor's Personnel on their assigned work tasks in advance of starting so that all workers are aware of the requirements of the Method Statements and Safety Plan including work place, scope, methods, safety PPE, timing and safety procedures;

(c) Instruction and management of traditional Japanese cleanliness safety campaigns known in Japan as:

5S ACTIVITIES where: Seiri = sorting, Seiton = tidying, Seiso = cleaning, Seiketu = cleanliness and Shituke = discipline;

コメントの追加 [J16]: Seiketsu?

(d) Instruction and management of safety education and training;

(e) Instruction and management of all safety measures; and

(f) Site Safety Inspections.

1.16 Joint Site Safety Inspections

1.16.1 In addition to the HSO's own daily Site Safety Inspections, the HSO shall conduct regular Joint Site Safety Inspections with the Engineer. ~~Respective s~~Safety staff of the both may also attend.

1.16.2 Frequency of Joint Site Safety Inspections shall be at least once a week.

1.16.3 Where any safety risks are detected during the inspections, the Contractor shall take immediate action.

1.16.4 The Engineer may be invited or may choose to participate in the Contractor's daily site safety inspections which will then be deemed to be a Joint Site Safety Inspection.

1.16.5 The Contractor shall prepare a report of each Joint Site Safety Inspection and submit this to the Engineer within seven (7) days after the inspection. A further copy shall be included in the Contractor's monthly progress report.

1.17 Compliance Monitoring and Auditing

1.17.1 The HSO shall develop and implement systems to ensure that compliance with the Safety Plan is ensured. Such compliance shall be monitored efficiently and transparently at all times, for which purpose the Contractor shall:

(1) Create checklists for monitoring.

(2) Carry out regular and random inspections.

(3) Analyse unsafe or non-compliance conditions and determine the effective measures~~Monitor failed, unsafe or non-compliant conditions and analyse data to determine what measures are most effective~~ in ensuring safety and minimising accidents.

(4) Create storage and filing systems for the monitoring records.

(5) Copy safety information to the Engineer as may be necessary for the Engineer's file if so requested by the Engineer.

1.17.2 Safety inspections are intended to search for risks and hazards~~,~~ which present a threat to safe working.

1.17.3 The Contractor shall also carry out regular health and safety audits, to ascertain if the Contractor's Safety Plan and health and safety management systems are working by focussing basically on the following five questions:

(1) Does the Safety Plan cover all regulatory and construction industry best practice requirements?

(2) Are the Safety Plan requirements being met?

(3) Is there documented proof of compliance?

(4) Is health and safety training effective?

(5) Is the Contractor's health and safety management system working effectively?

1.17.4 The persons or team designated to conduct the audits should take a fact-finding approach to gather data, and members shall be familiar with the Safety Plan and the nature of the Works.

1.17.5 The audit procedures shall be prepared by a senior member of the Contractor's head office health and safety ~~team~~section and shall require the consent of the Engineer.

1.17.6 The audit shall be headed by a senior member of the Contractor's head office health and safety section~~team~~.

1.17.7 ~~If so agreed by the Engineer, a~~Audits may be outsourced by the Contractor to a health and safety company subject to obtaining the consent of the Engineer.

1.17.8 The HSO may attend audits but only in an advisory capacity ~~and team members shall not be required or allowed to audit their own work~~.

1.17.9 The Contractor shall invite the Engineer to attend in the capacity of a witness ensuring that the audit is being carried out effectively and with a balanced, fair and non-biased approach.

1.17.10 The health and safety audits are primarily to check the effectiveness of the Safety Plan, the Contractor's health and safety personnel and the Contractor's health and safety management systems. The Audits shall not replace the regular health and safety inspections.

1.17.11 The audits shall be conducted at least twice every year and without giving notice to the Contractor's Personnel or others when any audit is to take place.

1.17.12 An audit report shall be prepared by the leader of the audit team, detailing the findings of the team and submitted to the HSO, with a copy to the Engineer, within seven (7) days after the audit. The report shall be signed by all attendees of the Contractor to certify their agreement to the content and to any recommendations for improvement.

1.17.13 The HSO shall analyse the findings of the audit, revise the Safety Plan and change health and safety management practices as necessary to ensure the required improvement. The Engineer shall be fully informed of all such revisions and changes.

1.18 Proper Placement of Contractor's Personnel

1.18.1 To a varying extent, many types of construction works are inherently dangerous and accordingly the Contractor under his duty of care must ensure that risks arising from all such potential dangers are avoided and Contractor's Personnel consequently protected.

1.18.2 In compliance with GC 6.9 [*Contractor's Personnel*], the Contractor shall assign only those personnel who are appropriately qualified, skilled and experienced in their respective trades or occupations. Contractor's Personnel shall also be suitable and capable of performing the work tasks for which they are selected in consideration of their physical fitness, mental condition, age and capability, all shall be equipped with correct PPE, tools, equipment and safety equipment.

1.18.3 Workers and unskilled workers shall never be assigned to any work on Site on their own, all shall be assigned in groups and each work group must always include an Operation Leader to ensure compliance with the Contractor's safety regulations.

1.18.4 The correct grades and numbers of Contractor's Personnel shall be assigned to respective work tasks and reasonable times and durations and support facilities shall be afforded by the Contractor to promote the safe and effective discharge of duties.

1.18.5 The HSO shall countersign all records to certify his confirmation that each member of the Contractor's Personnel is appropriately qualified, skilled and experienced in their respective trades or occupations prior to their placement. These records shall be made available for inspection by the Engineer.

1.18.6 Suitability of Contractor's Personnel and their work assignment shall be assessed by the Contractor with the assistance of the HSO in consideration of:

(1) Work content and work environment.

(2) Educational or vocational qualifications, practical experience, skill training and eligibility for category, title, rank or position by virtue of their achieved and demonstrated capability.

(3) Physical and mental health condition upon commencement of employment and on a regular basis before daily work starts.

(4) Allocation of an achievable and safe work volume and time.

(5) Allocation of suitable work to older workers and also to workers under 18 in compliance with GC 6.21 [*Child Labour*].

1.18.7 If the Laws of the Country require operating, supervising or management staff or any other Contractor's Personnel to have a licence, particular academic, educational or vocational qualification, diploma, registration or certification for any of their services or operations at the Site, the Contractor shall ascertain that all such Contractor's Personnel possess such documents.

1.18.8 The Contractor shall ascertain the authenticity and validity of licenses and all other documentation for Contractor's Personnel and if necessary shall independently test all personnel to ascertain that they do possess sufficient knowledge, academic, educational or vocational qualification, experience and skills.

1.18.9 The Contractor shall implement an identification (ID) pass system whereby all Contractor's Personnel carry ID passes with name, photograph, blood type, official ID number and statement of the skill and position for which the worker is qualified and assigned. This shall be clearly displayed by the person and be available for inspection and validation by the Engineer at all times. If any of the Contractor's Personnel is found not to have such valid ID for the position upon which he is assigned, the Engineer will instruct that person directly to stop work immediately, contact the HSO immediately and instruct that the HSO resolves the situation without delay by immediately removing the offending person from the particular work being undertaken ~~and from the Site~~ and assigning a suitable replacement, unless otherwise instructed by the Engineer.

1.19 Safety Training Generally

1.19.1 The Contractor shall conduct health and safety education and training for all the Contractor's Personnel.

1.19.2 The Contractor shall describe in the Safety Plan the outline of the health and safety training plans describing participants, time, teaching materials, policy for selecting trainers, etc. In addition, the Contractor shall submit full details of all health and safety training to the Engineer for information before the start of any training.

1.19.3 Training shall be provided free-of-charge to all participants and conducted during normal

working hours, all trainees shall be paid their normal wages during training and the Contractor shall bear all necessary associated costs and expenses.

1.19.4 Training shall be provided in a language which the persons to be trained fully understand (i.e. the native language of the persons to be trained or the language for communications as defined in GC 1.4 [*Law and language*] as appropriate).

1.19.5 Training Personnel

(1) Trainers (which description shall include teachers and educators also) can be personnel employed by the Contractor or external trainers for whom the Contractor shall remain responsible, all experienced, academically, educationally or vocationally qualified and (if required by the Laws of the Country), formally registered as trainers, teachers and educators.

(2) All trainers shall be fluent in the language ~~of the persons to be trained~~to be used in the training. Where necessary, proficient translators familiar with construction safety terms shall be provided by the Contractor.

(3) In case of absence of availability of suitable ~~personnel~~ trainers in the Country, the Contractor shall mobilise personnel from other countries whom the Contractor considers possess the necessary academic, educational or vocational qualification, ability and experience, subject to receiving the advance consent of the Engineer. ~~In such case, proficient translators, familiar with construction safety terms shall be provided by the Contractor where necessary.~~

1.19.6 Records of education and training

The Contractor shall create and maintain records of all trainees, showing full details of training subjects and their capability, achievements etc., and all shall be made available for the inspection of the Engineer.

1.20 Safety Induction Training

1.20.1 Safety induction training shall be provided by the Contractor for all Contractor's Personnel, any ~~subcontractors~~Subcontractors, suppliers and others for whom he is responsible, and if requested by the Engineer, the Employer(s Personnel and/or other persons who are entitled to be on the Site.~~including the Employer's Personnel and all other persons who are entitled to be on the Site at the request of the Employer or Engineer.~~

1.20.2 The safety induction training shall include classroom based training course and practical on-s~~S~~ite demonstration, in which the~~The~~ following subjects shall be covered:

(1) Responsible persons, chain of command and means of communication.

(2) Use of Contractor's Equipment, small tools and tackle, machinery, Temporary Works, Goods, materials; potential danger and required care.

(3) Working procedures generally.

(4) Inspections before starting and during execution of any work, reporting unsafe working conditions and equipment.

(5) Dangerous Work~~s~~; General rules, locations, posting warning signs, precautions and general working requirements. Refer to JSSS 1.22 [*Dangerous Work*] for additional training requirements.

(6) PPE and other safety devices; use, handling and care, reporting worn, damaged or defective equipment.

(7) Maintaining all working areas in an orderly, tidy and clean condition at all times.

(8) Accidents; action, evacuation and treatment, basic first-response medical aid, reporting.

(9) Firefighting; actions, precautions and control.

コメントの追加 [J17]: language of the persons というと第三国人（フィリピン人とか）を考えると複雑になってくる（タガログとか）。

コメントの追加 [J18]: Trainer を海外から調達してくるという話ならば、このように修正。
そうではなく、作業員一般を海外から調達してくるということならば、Training の話ではない。1.21.2 に関連の記述があるので、この（3）は削除

言語の話は（2）にまとめる

(10) Health and safety rules.

(11) Causes and prevention of diseases and conditions which may be injurious to health that may occur in relation to the work concerned.

(12) Emergency Response Plan; evacuation and calling list.

(13) Other related health and safety matters.

~~1.20.3 Practical on-Site demonstrations shall be included.~~

1.21 Skill Training

1.21.1 The Contractor shall ensure that ~~is reminded of his obligations under GC 6.9 [*Contractor's Personnel*] which require that~~ all Contractor's Personnel shall be appropriately qualified, skilled and experienced in their respective trades or occupations in accordance with JSSS 1.18.2.

1.21.2 The Contractor is also reminded of his obligations under GC 6.1 [*Engagement of Staff and Labour*] according to which the Contractor is encouraged, to the extent practicable and reasonable, to mobilize the local human resources with appropriate qualifications and experience. However, if the qualified, skilled and experienced Contractor's Personnel required by the Contract is not available in the Country or not available in the numbers or of the standards of for the periods required, the Contractor shall:

(1) Source and assign upon the Works Contractor's Personnel (of at least Operation Leader and skilled worker status) from other countries, and/or

(2) Recruit candidates in the Country and train them to provide the skill required to properly perform their assignments.

This shall be in such numbers and for such periods as are necessary to maintain the required standards of performance, quality, health and safety throughout the execution of the Contract~~the Time for Completion and Defect Notification Period~~.

(1) The Contractor shall test and qualify such personnel and provide them with formal written confirmation of their training, testing and academic, educational or vocational qualification, with copies provided to the Engineer if so requested by the Engineer.

(2) Outline of such training shall be submitted with the Bid Stage Safety Plan. Details of the training shall be further developed in the ~~Commencement Stage Safety Plan~~Baseline Safety Plan and onward.

(3) Skill T~~t~~raining may be omitted in full or in part for any Contractor's Personnel who, the Contractor has ascertained, hold valid academic, educational or vocational qualification and who are appropriately skilled and experienced in their respective trades or occupations in full compliance with GC 6.9 [*Contractor's Personnel*]. The Contractor shall report the names of any such Contractor's Personnel to the Engineer for his information.

1.21.3 Further Training of Operation Leaders and Skilled Workers

(1) Unless otherwise specified in the Particular Safety Specification and without limiting or changing the Contractor's obligations under the Contract, the Contractor shall be required to select candidates from his local skilled and unskilled workforce that he considers are suitable to act as future Operation Leaders and skilled workers, respectively.

(2) Training of Operation Leaders

(a) The Contractor shall ensure that his personnel work closely with and transfer necessary knowledge and skills via OJT to such candidates to develop their management abilities, skill levels and awareness of international safety and quality standards.

(b) To compliment the OJT, the Contractor shall provide classroom-based training

courses and assign qualified instructors to develop the ability, skills and awareness and also to pass on their knowledge in future to their working colleagues and compatriots.

(3) Training of Skilled Workers

(a) The Contractor shall ensure that his personnel work closely with and transfer necessary knowledge and skills via OJT to such candidates to develop their skill levels and awareness of international safety and quality standards.

(b) To compliment the OJT, the Contractor shall provide classroom-based training courses and assign qualified instructors to develop the ability, skills and awareness according to the work and also to pass on their knowledge in future to their working colleagues and compatriots.

(4) The Contractor shall develop the syllabus and teaching hours appropriately and submit details to the Engineer for his information. Wherever appropriate, the syllabus shall also include health and safety training to an international level of appreciation with a general introduction to OSHA and other applicable international safety standards and regulations.

コメントの追加 [伊藤19]: ユーザーガイドにあった記述から移転。
但し全ての trainee に施すことでもないので、必要に応じてという記述にしました

(5) The Contractor shall test and qualify such personnel and provide them with formal written confirmation of their training, testing and academic, educational or vocational qualification, with copies provided to the Engineer if so requested by the Engineer.

(6) Outline of such training shall be submitted with the Bid Stage Safety Plan. Details of the training shall be further developed in the ~~Commencement Stage~~ Baseline Safety Plan and onward.

1.21.4 Unless otherwise specified in the Particular Safety Specification, the Contractor shall not bring into the Country for use upon the Works any unqualified, unskilled or inexperienced foreign Contractor's Personnel.

1.22 Dangerous Work

1.22.1. Particular care shall be taken by the Contractor when performing any Dangerous Work.

1.22.2. Contractor's Personnel who are to perform or be involved at the Site in the performance of Dangerous Work, in addition to the usual safety induction training, shall be given further special training according to the nature of the Dangerous Work upon which they are to be engaged so that they can safely perform such work.

1.22.3. The HSO shall check and certify that each of the trained workers are authorised to be engaged upon particular types of Dangerous Work, by issuing an official permit in accordance with JSSS 1.23 [*Permit to Work System*] that is to be worn conspicuously and be available for validation by the Engineer.

1.22.4. The HSO shall ensure where Dangerous Work is to be performed, that preparatory pre-work inspections are carried out to investigate and assess the work to be performed and ascertain the conditions likely to be encountered. Such inspection work shall be carried out by specially trained personnel. The Contractor shall prepare safety procedures to ensure that any such inspection personnel are not placed at risk because of any unsafe environmental or other adverse or dangerous conditions.

1.22.5. A specially trained Operation Leader shall always be assigned to work full-time with every worker or team of workers engaged upon Dangerous Work.

1.22.6. The Contractor shall train and equip teams of selected workers at the Site for emergency rescue operation in accordance with JSSS 1.24 [*Accident Response Plan*].

1.22.7. The Contractor shall prepare and implement procedures for effective safety control of Dangerous Work. Such procedures may include zoning arrangements whereby different degrees of risk are separately categorised into different levels of requirement. The contents of

this shall be included in the Method Statement and Safety Plan.

1.22.8. Signage shall clearly describe the Dangerous Work and state the reasons why the area is dangerous.

1.22.9. For measures for prohibiting entry, methods of demarcation and further definition of Dangerous Work, refer to JSSS 2.3 [*Prohibition of Entry ~~– Dangerous Work~~*].

1.22.10. Hazardous Substances.

(1) If the Contractor during the execution of the Works, encounters and is required by the Particular Safety Specification or instructed by the Engineer to remove any Hazardous Substances (for example: asbestos and similarly dangerous or hazardous materials), the Contractor shall employ suitable specialists that are appropriately and specifically qualified, skilled and experienced in the safe and environmentally acceptable removal and disposal of the Hazardous Substances.

(2) The Contractor shall submit ~~detailed~~ Safety Plans and Method Statements with respect to the removal and disposal of the Hazardous Substances to the Engineer in accordance with JSSS 1.7 [*Contractor's Safety Plans*] and JSSS 1.9 [*Contractor's Method Statements*].

1.23 Permit to Work System – Dangerous Work

1.23.1 The Contractor shall prepare and implement a "Permit to Work System" and a description of this shall be included in the Safety Plan.

1.23.2 The system shall be designed to control safety for Dangerous Work.

1.23.3 The system shall ensure that all foreseeable risks have been considered and that the required control measures for safe working have been implemented before any specific work is permitted to proceed.

1.23.4 Permits shall certify that workers are protected when they perform and workers shall sign the permit and register to show that they understand the risks and the precautions necessary.

1.23.5 The HSO shall assess the work and check safety at each stage and manage the Permit to Work System.

1.24 Accident Response Plan

1.24.1 The Contractor shall be responsible for responding to and treating accidents at the Site in an efficient and dedicated manner with the provision of rescue and treatment services using trained personnel with experienced and qualified medical staff and adequate and equipped facilities at the Site.

1.24.2 Medical, first aid and related services and facilities at the Site for accidental injuries shall be made available free of charge to the Contractor's Personnel. If so specified in the Particular Safety Specification, such medical services and facilities shall also be made available free of charge for ~~the family members of the aforementioned~~other personnel/persons (e.g. the family members of the Contractor's Personnel, Employer's Personnel and their family members).

1.24.3 The Contractor shall prepare an Accident Response Plan as a part of the Safety Plan.

1.24.4 The Contractor shall provide the following medical and first aid facilities on the Site:

(1) ~~Deployment of a~~Appropriate first aid appliances, aids, instruments and medicines.

(2) ~~First aid training, appointment of first aiders and dissemination of information~~Trained first aiders.

(3) ~~Type of C~~ommunication facilities and measures for ~~emergency~~ Emergency ~~response~~Response.

(4) Medical ~~f~~Facilities on the Site together with suitable medical ~~description of appropriate~~

equipment and consumables.

(5) Temporary water and power supply to maintain use during mains supply failure.

(6) Transportation ~~facilities~~ to be provided to efficiently and carefully transport casualties to ~~clinics on the Site~~ medical facilities on the Site or hospitals off the Site.

(7) Additional facilities specified in the Particular Safety Specification, if any.

1.24.5 Where the Site is located at an excessive distance from urban areas and/or where there is a lack of immediate availability of medical services and facilities, or where local health authorities do not exist or are lacking in capability or standard of medical care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site to comply with his obligations as specified in the Particular Safety Specification ~~and as are necessary to fully protect all relevant personnel~~.

1.24.6 The Contractor shall train selected Contractor's Personnel to perform emergency rescue in a safe manner in the event of any accident. Workers so trained are called upon in the event of any emergency to rescue any person(s) who may become trapped or injured or otherwise affected or incapacitated and ~~to~~ provide suitable, specialist and appropriate first aid treatment. They shall be allowed to continue with their normal work when not required for emergency rescue.

1.24.7 Rescue equipment shall include respiratory protective equipment for rescue operations, where the nature of the Works would dictate, safety extraction belts/harnesses/ropes ~~measures~~.

~~1.24.8 If an accident occurs and rescue is required, the Contractor shall prohibit any personnel to engage in rescue activities other than those trained to do so in order to prevent secondary accident.~~

コメントの追加 **[J20]:** transfered to 1.25.1 (3)

~~1.24.9~~1.24.8 Workers trained for emergency rescue, in addition to normal first aid treatment, shall be trained to perform Cardiopulmonary Resuscitation (CPR) and also to operate an Automatic External Defibrillator (AED) in accordance with the requirements of JSSS 2.9 [*PPE and First Aid*].

~~1.24.10~~1.24.9 Adequate first aid equipment and supplies shall in any case be readily available at the Site and as referred to in JSSS 2.9 [*PPE and First Aid*].

1.25 Measures at the Time Accidents Occur

1.25.1 When an accident occurs, the HSO shall immediately discontinue the concerned work, inform the Engineer and take all efforts to:

(1) Safely locate and extract casualties.

(2) Provide first aid treatment at the Site.

(3) Implement Secondary accident prevention activities, including:

(a) Preserving the accident site, make safe and prohibit any personnel to engage in rescue activities who are not trained~~other than those trained~~ to do so ~~prevent anyone interfering or entering~~;

(b) Discontinuing construction work related to or in the vicinity of the accident; and

(c) Implementing any further measures instructed by the Engineer.

1.25.2 Report of Accident Occurrence, Cause, Investigation, Result and Recurrence, Prevention Measures.

(1) At occurrence of any accident, ~~T~~the HSO shall promptly inform the Engineer and thereafter submit details of the~~any~~ accident within twenty four (24) hours after its occurrence.

(2) Having investigated and established the cause of any accident, the HSO shall report the detail and conclusion of the investigation as soon as practicable ~~and in any event no later~~

~~than 48 hours after its occurrence, or as may be instructed otherwise by the Engineer~~.

(3) The a~~A~~ccident r~~R~~eport shall include details of the ~~recommended~~ counter-measures to prevent any reoccurrence and shall be in the format included in JSSS Annex 1.3 [*Additional Contractor Forms*].

1.25.3 For resumption of work procedures, refer to JSSS 1.14 [*Procedure for Resuming the Works*].

1.26 Emergency Response Plan

1.26.1 To the extent reasonably possible, the Contractor shall keep himself fully informed at all times of likely forecasted climatic conditions, from TV, radio and internet and shall be aware when heavy winds, storms, rainfall or snowfall and electrical storms or other adverse climatic conditions are likely and can be reasonably anticipated.

1.26.2 The Contractor shall take all necessary measures to protect Contractor's Personnel, the Works and all Goods for incorporation therein from injury or damage caused by any such adverse climatic conditions, and to avoid, overcome or lessen the effects to a reasonable extent.

1.26.3 The Contractor shall keep all areas of the Site, free from surface water and ground water at all times and by whatever means are necessary. This shall include all newly exposed ground surfaces, excavated areas and/or excavations for structures, piling, trenches, pits, shafts, tunnels and the like, as necessary to ensure:

(1) The safety of all persons entitled to be on the Site, whether engaged in construction operations or otherwise on or in the vicinity of or adjacent to the Site.

(2) The safety and stability of the Works and Goods.

(3) The safety and stability of all ground surfaces, excavated areas and/or excavations for structures, piling, trenches, pits, shafts, tunnels and the like, to prevent landslides due to surface water from rainfall and snowmelt, tidal water, ground water and any changes in ground water level, river or stream erosion, human activity and the like.

1.26.4 Where, due to the location of the Site, there is a risk of flooding, earthquake or volcanic activity, the Contractor shall take measures to prevent damage including damage from landslides and consequent injury, damage from such flooding, earthquake or volcanic activity.

Such measures to be implemented shall include:

(1) Avoiding the use of permanent or temporary earth dams, enclosures, containment structures, spoil heaps or the like where the effect of the above described climatic, seismic or volcanic conditions could weaken or destroy such structures and potentially create the consequent risk of danger to all relevant persons, including third parties and property not connected with the Works but potentially affected thereby.

(2) Provision of temporary support to all sides and soffits of excavations or portal of tunnelling of sufficient strength, durability and suitability.

(3) Provision of sufficient temporary drains and drain trenches to assist the flow of water and any further measures to prevent the effect of water entry to the Works, including pumping and provision of power for such measures.

1.26.5 Measures as required by the above shall be described by the Contractor in the Method Statements ~~which may be requested by the Engineer in accordance with GC 4.1 [*Contractor's General Obligations*] and JSSS 1.9 [*Contractor's Method Statements*]~~.

1.26.6 The Contractor shall prepare an Emergency Response Plan as a part of the Safety Plan.

1.26.7 The Emergency Response Plan, shall cover:

(1) Evacuation plan, showing evacuation routes and assembly points.

(2) Emergency communication facilities such as telephones, radios, transceivers, loudspeakers, sirens, etc. Such facilities shall be inspected by the HSO and maintained

at all times so that they can be utilised in any emergency.

(3) Emergency contact system.

(4) Use of existing and available medical and other related facilities.

(5) Emergency stocks of bottled water, lights, ropes, shovels.

The Contractor shall provide and maintain in a state of readiness such equipment described above, that will remain useable in the case of an emergency. Where applicable sufficient back-up power shall be provided when power may be knocked out, long-life batteries, power generators with fuel capacity to allow long term use and the like.

1.26.8 The emergency contact system shall describe measures for quickly establishing locations, methods of contact and a listing of the persons, organisations and departments, that need to be located and contacted in the event of an emergency.

The list shall be posted in a visible location in the Contractor's Site office with a copy in the Employer's and Engineer's Site offices so that all personnel are informed.

The emergency contact list shall include name(s) of the person(s) responsible for making the contact, relevant contact persons, all with their respective telephone numbers and where relevant their radio contact.

The list shall include contact details and any further relevant information for the following parties, and define the extent to which contact is to be made in accordance with the type of emergency:

(1) Employer's Personnel at the Site and also at their respective head office where different.

(2) Relevant government authorities and agencies, administrative agencies, police stations, ambulance and fire stations, and the like.

(3) Contractor's Personnel at the Site and also at the head office where different.

(4) Subcontractors' personnel and the personnel of any other contractors or suppliers at the Site and also at the head office where different.

1.26.9 Unless otherwise specified in the Particular Safety Specification, the Contractor shall conduct ~~emergency~~ Emergency ~~response~~ Response training based on the Emergency Response Plan at least every six (6) months, including training all personnel at the ~~s~~Site on evacuation plan and emergency contact system.

Details of the training shall be included as a part of the Emergency Response Plan and included with the Safety Plan.

1.26.10 If and when an emergency occurs, the Contractor shall share necessary information amongst prescribed persons on the emergency contact list described above and take appropriate measures including work discontinuation, evacuation of workers, making the Works, all premises and Contractor's Equipment safe, etc., all as circumstances reasonably permit and as instructed by the Engineer.

1.26.11 The Contractor shall also allow use of existing medical facilities, ambulances and equipment all as circumstances reasonably permit or as instructed by the Engineer.

1.26.12 ~~For further measures and requirements refer to JSSS 2.7 [*Adverse Weather Requirements*].~~

1.27 Contractor's Safety Committee and Regular Safety Meetings

1.27.1 The Contractor shall create an internal Safety Committee to assist with promoting and maintaining effective health and safety management.

1.27.2 Members of the Contractor's Safety Committee shall include:

(1) Contractor's Representative.

コメントの追加 [岡本21]: 何のために参照しているか不明

1.26 と 2.7 は悪天候に関連するということで共通しており、前者ではその際の緊急連絡等を中心に記述があり、後者では立ち入り禁止や強風時の高所作業の禁止等の具体的手段（予防的手段）について記載があります。

後者は Emergency とは関係がない・・・と整理してここは削除します。

(2) HSO.

(3) Medical and first aid staff.

(4) Contractor's senior site staff.

(5) Contractor's head office safety manager (as necessary).

(6) Subcontractors' representatives, health and safety personnel, site staff.

(7) Representative of labour union, if any.

(8) (If necessary) Representatives of the relevant government authorities and agencies.

(9) Any other necessary personnel.

1.27.3 The HSO shall be the ~~chairman~~ chairperson of the Safety Committee.

1.27.4 The Contractor shall arrange regular Safety Committee Meetings for the purpose of sharing information regarding health and safety management among the Contractor's Personnel:

(1) Frequency of the meetings: At least once a month (until issue of the Taking-Over Certificate of the entire Works).

(2) Agenda:

(a) Accidents, fatalities, injuries occurred in the previous month and measures to be taken to prevent any reoccurrence;

(b) Monthly or weekly schedule of important health and safety matters;

(c) Feedback on the regular safety, coordination and other meetings with the Engineer;

(d) Safety instructions received from the Engineer;

(e) Items to be coordinated with police, fire department and other related organisations;

(f) Compliance and registration requirements under the Laws of the Country;

(g) Safety and health awards, media attention and the like;

(h) Hazards, safety and health problems identified by any members of the Safety Committee;

(i) Effectiveness of existing Safety Plans and suggestions for revision and improvement; and

(j) Other matters.

1.27.5 Report on the Safety Committee Meetings

~~The Contractor~~The HSO shall prepare a report summarising the concerns raised and conclusions of all items listed in the agenda as above.

A copy of this report shall be submitted to the Engineer within seven (7) days after the meeting and a further copy shall be included in the Contractor's monthly progress report.

1.28 Engineer's Regular Safety Meetings

1.28.1 The Engineer will arrange and host a regular safety meeting to be attended by representatives of the Employer and the Contractor for the purpose of sharing information regarding health and safety management among the representatives of the Employer and the Contractor. Parties present shall have the authority to represent the organisation they belong to on health and safety matters:

(1) Frequency of the meetings: Once a month (until issue of the Taking-Over Certificate of the entire Works).

(2) Agenda:

(a) Effectiveness of existing Safety Plans and suggestions for revision and improvement;

(b) Monthly or weekly schedule of important health and safety matters;

(c) Accidents, fatalities, injuries in the previous month and measures to be taken to prevent any reoccurrence;

(d) Hazards, safety and health problems identified by any members of the Safety Committee;

(e) Status of resolution of previous problems;

(f) Items to be coordinated with police, fire department and other related organisations;

(g) Compliance and registration requirements under the Laws of the Country; and

(h) Safety and health awards, media attention and the like.

1.28.2 Report on the Engineer's Regular Safety Meetings:

(1) The Engineer shall prepare a report summarising the concerns raised and conclusions of all items listed in the agenda as above.

(2) A copy of this report shall be submitted to the Contractor and Employer within seven (7) days after the meetings.

(3) A further copy shall be included in the Engineer's Monthly Report submitted to the Employer.

(4) The Contractor shall act immediately upon any oral instruction which is a consequence of the Contractor's failure to comply with his obligations under the Contract.

(5) The Engineer shall issue a formal instruction for any variation requests.

1.29 Project Safety Committee

1.29.1 On larger Projects with multiple contract packages~~–~~,if so stated in the Particular Safety Specification, the Employer ~~shall and contractors and unless otherwise stated in the Particular Safety Specification for those Projects, the Employer shall~~ create~~s~~ a Project Safety Committee for the purpose of ensuring mutual understanding and effective implementation of health and safety management of the entire ~~throughout the entire~~ Project ~~team~~.

1.29.2 Unless otherwise agreed, the members of the Project Safety Committee shall include:

(1) The Employer.

(2) The Engineer(s).

(3) The Contractor~~'~~s' Representative~~(s)~~.

(4) Health and Safety Officers of all members.

1.29.3 The chairperson~~Chairman~~ of the Safety Committee shall be the Employer.

1.29.4 The ~~Employer shall hold~~ Project Safety Committee meetings~~,~~ periodically takes place as requested by the Employer. The Contractor shall participate in the same whenever requested by the Employer until issue of the Taking-Over Certificate of the entire Works.

1.29.5 The Employer shall prepare a report summarising the concerns raised and conclusions of all items discussed at the Project Safety Committee Meeting.

1.30 Health and Safety Coordination with Other Contractors

1.30.1 Refer to GC 2.3 [*Employer's Personnel*] and GC 4.6 [*Co-operation*] regarding the respective

obligations and requirements for the Contractor regarding cooperation with:

(1) The Employer's Personnel.,

(2) Any other contractors employed by the Employer,

(3) The personnel of any relevant authorities~~, who may be employed in the execution on or near the Site of any work not included in the Contract~~.

In relation to the above, the Employer shall ensure that all of the above personnel and contractors co-operate with the Contractor's efforts and that they take actions similar to those that the Contractor is required to take under relevant parts of GC 4.8 [*Safety Procedures*] and GC 4.18 [*Protection of the Environment*].

The Contractor shall provide sufficient information to the Employer who shall then ensure that all of the above personnel and contractors are fully informed of the Contractor's Safety Plan and that their personnel comply with the Contractor's Safety Plan.

When preparing the Safety Plan, the Contractor shall identify the hazards and assess the risks of all aspects. To do this properly, information (including ~~method~~ Method ~~statements~~Statements, risk assessments and safety plans) may be needed from other contractors who will be working at the Site. The Employer shall therefore ensure that the Contractor is provided with all such other information as ~~is~~ may be requested by the Contractor necessary so that this can be incorporated into the Safety Plan. ~~The Employer will also ensure that the Contractor is able to contact such other contractors and liaise with them on matters of health and safety.~~

When risks arise because of potential interactions between the Contractor and other personnel or contractors (e.g. site transport matters) or a number of contractors are exposed to a common risk (e.g. from the site electrical distribution system), the Employer shall instruct these other contractors to adopt the same principles of risk prevention and control that are applied by the Contractor unless otherwise agreed.

~~1.30.2 The Particular Safety Specification shall clearly describe any works for which the Employer is proposing to employ other contractors and any parts of the Site where the Employer's Personnel will be working together with a clear description of such works and the location, timing and other conditions for such works.~~

~~1.30.3~~1.30.2 If any other contractors are employed by the Employer~~ or if any relevant authorities responsible to the Employer~~ and are working on or near the Site of any work, the Employer ~~ngineer~~ shall arrange and host Health and Safety Coordination Meetings:

(1) Frequency of the meetings: as and when considered necessary by Engineer.

(2) Unless otherwise agreed, attendees shall include representatives of the Employer, Contractor and any other contractors employed by the Employer and relevant authorities who are concerned with ~~may be employed in the~~ execution of any work on or near the Site not included in the Contract

(3) Agenda should relate to coordination among different contractors including for example:

(a) Effectiveness of existing Safety Plans and suggestions for revision and improvement;

(b) Issues, problems and response due to the mutual impact of the work of the Contractor, Employer's Personnel, the Employer's other contractors and the works of any relevant authorities;

(c) Accidents, injuries in the previous period and measures to be taken to prevent any reoccurrence;

(d) Status of resolution of previous problems;

(e) Items to be coordinated with police, fire department and other relevant~~ated~~ authorities~~organisations~~;

(f) Compliance and registration requirements under the Laws of the Country;

(g) Safety and health awards, media attention and the like; and

(h) Other matters.

~~1.30.4~~1.30.3 Report on the Health and Safety Coordination Meetings:

(1) The ~~Engineer~~ Employer shall prepare a report summarising the concerns raised and conclusions of all items listed in the agenda as above.

(2) This report shall be submitted to the ~~Employer,~~ Contractor and other attendees within seven (7) days after the meeting.

(3) A further copy shall be included in the Contractor's monthly progress report.

1.31 Safety Statistics

1.31.1 The Contractor shall collect and compile statistical data for safety performance on the Works in order to permit monitoring of achievement and prevention of reoccurrence of accidents, near-misses and the like, therefore contributing to the improvement of safety on the Works.

1.31.2 Actual statistics shall include the following:

(1) Accident: description, casualties, location, time, type and cause.

(2) Near-miss: description, location, time, type and cause.

(3) Lost-time: lost hours of casualties, duration of discontinuation.

(4) Total working hours for calculation of frequency rate, severity rate and annual incident rate.

(5) Number of users of the first aid station, number of people treated for disease/injury, description of disease/injury, causes.

(6) Number of health and safety staff.

(7) Number of candidates given safety induction and other training.

(8) Number of safety inspections,

(9) Number of detections of non-compliant, unsafe or lack of Contractor's Equipment.

(10) Number of instructions issued for failure to use PPE, or inadequate or ineffective PPE.

(11) Number of Engineer's Instructions issued for work suspension.

(12) Number of HSO instructions issued for work stoppage.

(13) Others.

1.31.3 All data shall be in a format and content given consent by the Engineer.

~~1.31.4 The statistical results shall be prepared and submitted in the Daily Safety Report to the Engineer for validation and mutual agreement.~~

~~1.31.5~~1.31.4 The data shall subsequently be compiled and included in the Contractor's Monthly Safety Report to be submitted under JSSS 1.33 [*Safety Reports*].

1.32 Health and Safety Records

1.32.1 The Contractor shall keep health and safety records for the following:

(1) Inspection records and checklists.

(2) Meetings for safety and health management.

(3) Monitoring of safety and health management activities.

(4) Health and safety education and training for the Contractor's Personnel.

(5) Health management for the Contractor's Personnel, documents regarding workers' health conditions (such as medical history and medical examination results) shall be stored in compliance with the Laws of the Country.

(6) Work environment records and other records required by JSSS Chapter 2 [*General Safety Measures*] and other parts of JSSS.

(7) Record of reports as may be required by government authorities.

(8) Detection of non-compliant, unsafe or lack of Contractor's Equipment.

(9) Instructions issued for unsafe behaviour or unsafe site conditions.

(10) Instructions issued for failure to use PPE, or inadequate or ineffective PPE.

(11) Engineer's Instructions issued for work suspension.

(12) HSO instructions issued for work stoppage.

(13) Others.

1.32.2 All records shall be in a format and content given consent by the Engineer and all shall be made available for inspection by the Engineer.

1.32.3 A summary of the above records shall be submitted to the Engineer as a part of the Contractor's Monthly Safety Report to be submitted under JSSS 1.33 [*Safety Reports*].

1.33 Safety Reports

1.33.1 The Contractor shall provide regular safety reports to the Engineer to keep him fully informed of compliance with the Safety Plan and all matters of health and safety. Reports shall include:

(1) Daily Safety Report: number of workers ~~at site~~, works in progress (outline), statistical results in accordance with JSSS 1.31.2, near-misses/incidents/accidents, safety findings, actions taken, for improvement.

(2) Contractor/HSO and Joint Site Safety Inspection Reports.

(3) Weekly Safety Report: summary of safety matters of the week.

(4) Monthly Safety Report: summary of safety matters for the month, monthly and cumulative safety statistics. The Monthly Safety Report shall be submitted as a part of ~~an attachment to~~ the Contractor's monthly progress report, required by GC 4.21 [*Progress Reports*].

1.34 Health and Safety Incentive Schemes

1.34.1 The Contractor shall consistently enforce work rules (whether or not an injury or illness is reported) to demonstrate his commitment to creating a culture of safety, not just the appearance of reducing rates. Action should not be taken to penalise any worker for reporting a work-related injury or illness rather than for the purpose of promoting workplace safety.

1.34.2 It is considered that incentive schemes are an important tool to promote an improvement in workplace health and safety and the Contractor is therefore required to develop and implement such health and safety incentive schemes.

1.34.3 It is suggested that workers should be rewarded for reporting near-misses or hazards, as this promotes worker involvement in the health and safety management process.

1.34.4 Consideration should also be given to rate-based incentive schemes which concentrate on reducing the number of reported injuries and illnesses by rewarding workers with certification and/or prizes or bonuses at the end of an injury-free period and which also could reward Operation Leaders or managers based on the lack of injuries within their respective teams.

コメントの追加 **[岡本22]:** Is this expression correct?

1.34.5 Any scheme must however be implemented in such a manner that it does not discourage reporting by workers, such as taking negative action against a worker by withholding a prize or

bonus because of a reported injury.

1.34.6 The Contractor shall introduce adequate precautions to ensure that workers feel free to report an injury or illness.

1.34.7 As an alternative to rate-based achievement schemes, incentive schemes that take positive steps to emphasise safety, not just incident rates are often useful such as schemes that reward workers for identifying potentially unsafe, dangerous or hazardous conditions on the Site.

1.34.8 The Contractor shall describe the proposed health and safety incentive scheme in the Safety Plan and shall also inform the Employer and Engineer about the progress and achievement of such schemes through their Monthly Safety Report submitted under JSSS 1.33 [*Safety Reports*].

1.35 Contractor's Equipment, Temporary Works, Safety Equipment and PPE

1.35.1 Contractor's Equipment, Temporary Works, Safety Equipment and PPE to be used upon the Works, (for example electrical systems, welding and cutting equipment, ~~scaffolding~~Scaffolding, ~~system~~ Formwork and Falsework, etc.) together with all components, systems, materials and equipment, safety equipment and PPE (referred to collectively in this clause as Contractor's Equipment and Temporary Works)~~,~~ shall be suitable and fit for the purpose for which they are intended.

All shall be used in full accordance with the manufacturer's printed instructions or accepted industry practice and shall be used, stored, handled, assembled, erected, installed, maintained and dismantled by qualified, skilled, specially trained and experienced personnel.

1.35.2 The Contractor shall ensure that all items of Contractor's Equipment and Temporary Works for use upon the Works are inspected by the HSO at the required location before the commencement of any operation or use and regularly inspected thereafter to ensure continued compliance with the foregoing. Following any such inspection, all tested items shall be labelled by the Contractor with clear, durable and weatherproof labels confirming the last/current date of inspection, date of next inspection and signed by the HSO, thereby certifying the items as being safe for use.

If the HSO ascertains at any time that any items are not suitable for use, he shall immediately stop all use of that item, label the item as not being safe for use, stop all work for which that item and any associated items is being used and cease any such work until the situation is corrected by repair, re-testing and certifying. Similarly, the Engineer may issue instructions to stop all use of any item and stop all work for which that item and any associated items is used when it is discovered that the certification is not available or is not currently valid.

1.35.3 The Engineer may also instruct that any Contractor's Equipment and Temporary Works shall be subjected to examination, inspection, measurement or testing, by the Contractor at the expense of the Contractor. The Contractor shall submit the report of such examination, inspection, measurement or testing to the Engineer.

If, as a result, any such Contractor's Equipment and Temporary Works is found to be defective, or otherwise not in accordance with JSSS or the Contract, the Engineer may reject such Contractor's Equipment and Temporary Works by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the defect and ensure by repair/replacement as necessary and re-testing that the rejected item(s) complies with the Contract.

1.35.4 As confirmed in Form JSSS/BSD Bidder's Safety Declaration (refer to JSSS Annex 1.3 [*Additional Contractor Forms*]), the Contractor shall mobilise for use upon the Works:

(1) New and up to date Personal Protective Equipment (PPE) and other safety equipment of an international standard, suitable and fit for the purpose for which it is intended, in full working order, complete with all necessary spare parts and consumables, suitable and safe for use on the Works, all to meet with the consent of the Engineer and in sufficient quantities to allow for replacement in the case of being worn-out, lost or damaged.

コメントの追加 [伊藤23]: Section?

1. Chapter
1.1 Section
1.1.1Clause
1.1.1(1) Sub-Clause
1.1.1 (1) (a) paragraph

(2) New or recent ~~up to date~~ Contractor's Equipment and Temporary Works, all suitable and fit for the purpose for which it is intended, in full working order, clean, non-polluting, complete with all necessary spare parts and consumables, suitable and safe for use on the Works.

1.36 Health Matters

1.36.1 The Contractor is reminded of his obligations under GC 6.7 [*Health and Safety*] to take all reasonable precautions, at all times to maintain the health of the Contractor's Personnel and ensure that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics. Under other clauses of the Contract, the Contractor is required to protect the Contractor's Personnel from insect and pest nuisance, and to take other measures to reduce danger to their health.

1.36.2 Healthcare services and facilities at the Site shall be made available free of charge. If so specified in the Particular Safety Specification, such healthcare services and facilities shall also be made available free of charge for other~~the family members of the aforementioned~~ personnel/persons (e.g. the family members of the Contractor's Personnel, Employer's Personnel and their family members).

1.36.3 Occupational health care shall be provided by the Contractor and shall include:

(1) Environmental health care with consideration and precautions against asbestos, dust, lead and other metals, gases, hazardous and toxic chemicals, sunlight, engine exhaust emissions, (refer also to JSSS 2.1 [*Working Environment*]).

(2) ~~Occupational health care including~~ Measures against noise, frequent or excessive use of vibrating tools.

(3) Avoiding frequent or excessive manual handling of loads, stress and fatigue.

(4) Fitness to work based on the ~~examinations, including eyesight, hearing and~~ physical mobility and capability of the Contractor's Personnel.

1.36.4 The Contractor shall prepare a Health Care Plan as a part of the Safety Plan including, descriptions and where necessary details or quantities of:

(1) Health care staff to be assigned at the Site.

(2) Provision of anti-mosquito measures including nets, medications or inoculations and the like in malarial prone areas.

(3) Healthcare services to be provided including lectures and education on health matters.

(4) Healthcare treatment facilities and medicines on the Site together with description of equipment and consumables.

(5) Occupational healthcare proposal.

(6) Temporary water and power supply to maintain use during mains supply failure.

1.36.5 Where the Site is located at an excessive distance from urban areas and/or where there is a lack of immediate availability of healthcare services and facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional healthcare services and facilities at the Site to comply with his obligations as specified in the Particular Safety Specification and as are necessary to fully protect all relevant personnel.

1.36.6 Report of Serious Illness

(1) The Contractor shall inform the Engineer and submit details of any serious illness.

(2) Having investigated and established the cause of any serious illness, the Contractor shall report the detail and conclusion of the investigation as soon as practicable to the Engineer.

(3) The report shall include details of the HSO's recommended counter-measures.

(4) The Engineer is to be consulted on the types of illness for which reports are to be informed.

1.37 Design and Management of Temporary Works

1.37.1 Unless otherwise specified in the Particular Safety Specification, the Contractor is required to comply with Sections 1 and 2 of BS5975: Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework~~.~~ as management standard with respect to design, erection, use and dismantling of Temporary Works.

1.37.2 An alternative standard is acceptable by reference to JSSS 1.4~~1.4.5~~ [*Compliance with JSSS and Other Regulations*] providing that the proposed alternative also contains equivalent or higher standards for the management of Temporary Works.

コメントの追加 [J24]: 引用先は 1.4 が正しいと思いますが、念のためご確認下さい。

1.37.3 It is to be noted that Section 1 and 2 of BS5975 constitutes guidance and recommendations and it is not quoted herein as if it constitutes a specification or an integral part of JSSS. The Contractor shall however justify in writing any course of action that deviates from the recommendations of Section 1 and 2 of BS5975 and shall submit such justification to the Engineer for his information and consent.

1.37.4 It is to be noted that certain design standards included or referred to in the BS (for example wind loadings), are restricted to use in the United Kingdom, in which case the Contractor shall be assumed to have adopted the design standards applicable in the Country ~~of the Works~~.

1.37.5 The Contractor shall prepare and implement suitable procedures whereby all Temporary Works staff during the course of their work and on completion shall prepare and sign formal records of all Temporary Works under their management and control, thereby certifying that all has been performed, completed and validated in accordance with Section 1 and 2 of BS5975. All such records shall be in a format and content subject to the consent of the Engineer and all shall be made available for inspection by the Engineer.

1.37.6 Without affecting the Contractor's responsibilities for design of the Temporary Works, the Engineer shall cooperate with the Contractor's Temporary Works staff and shall provide pertinent information about the design of the Permanent Works which may be of relevance and assistance to the Contractor with the Temporary Works design.

The Contractor shall submit Method Statements for any parts of the Temporary Works (including designs and calculations of Falseworks) as may be requested by the Engineer for his review in accordance with JSSS 1.9 [*Contractor's Method Statements*]. If the Engineer chooses to review same, this shall not be construed as a check or validation of the Contractor's design or methods.

The Engineer may review Temporary Works design for those parts which he considers to be of vital importance for safety. The Contractor shall cooperate and work with the Engineer on this task to demonstrate that the Contractor has systems in place to ensure compliance with Section 1 and 2 of BS 5975 or any other acceptable standard in accordance with JSSS 1.37.2. ~~[*Design and Management of Temporary Works*]~~.

1.37.7 For further information on monitoring the performance of Temporary Works, refer to JSSS 6.1.3. [*Monitoring the Performance of Temporary Works*].

1.37.8 Irrespective of any legal requirement under the Laws of the Country, all of the Contractor's Temporary Works ~~specialist~~ staff shall have appropriate academic, educational or vocational qualification for Temporary Works coordination, design or supervision as appropriate. Such staff shall also have work experience in construction and in Temporary Works design or supervision as appropriate. The Contractor shall ascertain for himself that all such staff are qualified to perform their duties.

コメントの追加 [J25]: 1.37.5、1.37.6 では単に Temporary Works staff と言っている。

1.38 Unexploded Ordnance (UXO)

1.38.1 If there is a possibility that any UXO may exist at the Site, then unless otherwise specified in the Particular Safety Specification, this shall be surveyed and investigated by the Employer and the result of this investigation shall be clearly stated and full information including survey and investigation results shall be provided by the Employer in the Particular Safety Specification.

1.38.2 Unless otherwise specified in the Particular Specification, clearance of UXO shall be undertaken by the Employer and at the cost of the Employer.

1.38.3 Completion of clearance shall be evidenced through the issue by the Employer's specialist remover of a certificate of UXO clearance from the Site area. Unless otherwise approved by the Engineer, no work shall commence in affected areas of the Site until the receipt of a copy of this certificate.

1.38.4 Should the Contractor encounter any UXO, after a clearance certificate has been issued in accordance with the above, he shall immediately stop all affected work at the affected area of the Site, clear the area of all Contractor's Personnel, Employer's Personnel and all other persons and notify the Engineer and relevant authorities.

1.38.5 Unless otherwise agreed between Employer and Contractor, the Employer shall then make further arrangements for removal and disposal, then obtain and issue a further clearance certificate. Work shall resume in the affected areas after the Contractor has received a copy if the further clearance certificate together with any further instructions from the Engineer.

ANNEXES TO CHAPTER 1: GENERAL REQUIREMENTS

Annex 1.1: Definitions and Abbreviations

A1.1.1 The following words and expressions in JSSS relating to the Conditions of Contract and the content of JSSS shall have the definitions stated:

~~(1)~~ ~~"**Executing Agency**" means the representative organisation of a recipient government of the JICA Loan tasked with the responsibility (inter-alia) for managing the implementation of the Project including preparation of Bidding Documents and usually defined in the Contract as the Employer.~~

~~(2)~~(1) "**GC**" ~~and "**PC**"~~ followed immediately by a reference number means respectively General Conditions of Contract and Particular Conditions of Contract, Clause or Sub-Clause.

~~(3)~~(2) "**Health and Safety Officer**" or "**HSO**" means the Contractor's health and safety officer at the Site to be appointed by the Contractor in accordance with GC 6. 7 [*Health and Safety*] ~~as construed in accordance with JSSS 1.12 [*Health and Safety Officer at the Site (HSO)*]~~. For the purposes of interpretation under JSSS, the reference to "accident prevention officer at the Site" in GC 6.7[Health and Safety], shall be construed as "Health and Safety Officer at the Site"

~~(4)~~(3) "**JICA Standard Safety Specification**" or "**JSSS**" means the document of this title published officially by JICA on their website as may be further modified by the Particular Safety Specification for the Works.

~~(5)~~(4) "**Method Statement**" means a document that shows the details of the arrangements, methods and resources that the Contractor proposes to adopt for the execution of the Works or any part of the Works, as referred to in GC 4.1 [*Contractor's General Obligations*] and supplemented by JSSS 1.9 [*Contractor's Method Statements*].

~~(6)~~(5) **"Operation Leader" (**also known variously as a "Ganger", "Leading Hand", "Foreman" (working and non-working), "Team Leader", "Superintendent", "Supervisor" and the like) means a member of the Contractor's workforce who through experience, training and testing is deemed by the Contractor to be appropriately qualified, skilled and experienced in their respective trade or occupation to work with, lead and/or supervise the teams of workers, directing them and/or superintending them in the performance of their assigned duties and to ensure their compliance with the Contractor's safety regulations and who can also be referred to within the OSHA definition as a "Competent Person".

~~(7)~~(6) "**OSHA**" means the technical requirements of "OSHA Standard Part 1926 Safety and Health Regulations for Construction", as written in Code of Federal Regulations (29 CFR) and published by the Occupational Safety and Health Administration, U.S. Department of Labor.

~~(8)~~(7) "**Particular Safety Specification**" means the document that contains the particular additions and modifications to JSSS, necessary to create a precise and relevant specification of the health and safety requirements for the Works.

~~(9)~~(8) "**Safety Specification**" means the document that contains Part 1 [*JSSS*] and Part 2 [*Particular Safety Specification*].

~~(10)~~(9) "**Project**" means the particular Works and services to be implemented by the Borrower and described in the loan agreement, utilising the funds provided by JICA under the terms mutually agreed for that purpose.

~~(11)~~(10) "**Safety Plan**" means a document (or documents) that contains the overall risk assessments together with the details of all health and safety arrangements, methods and resources that the Contractor proposes to adopt for health and safety management of the

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entire Works or any Section or part of the Works, as referred to in GC 4.1 [*Contractor's General Obligations*] as supplemented by JSSS 1.7 [*Contractor's Safety Plans*].

~~(12)~~(11) "**Safety**" shall also mean "occupational health and safety" and "health and safety".

A1.1.2 The following words and expressions in JSSS relating to the technical content of JSSS shall have the definitions stated:

(1) "**Accident Response**" means the requirements for the Contractor's response to an accident at the Site or Sites, as further referred to in JSSS 1.24 [*Accident Response Plan*].

(2) **"Confined Spaces"** means spaces that are not designed for continuous occupation but are provided for persons to enter and perform certain works (including inspection, maintenance and repairs) and that consequently may have limited or restricted means for entry or exit. Due to the likelihood of insufficient ventilation, the Contractor shall be aware of a potentially unhealthy or dangerous environment and he shall be deemed to have investigated and taken measures against such risks in every case.

(3) **"Cofferdam"** means a temporary enclosing wall constructed in water, to permit the enclosed area to be pumped out and used as safe and accessible working space.

(4) **"Dangerous Goods"** means corrosive, flammable, explosive, spontaneously combustible, toxic, oxidising, or water-reactive materials. They must be identified in the workplace (and when being transported) by different coloured 'diamond' symbols. classified on the basis of immediate physical or chemical effects, such as fire, explosion, corrosion and poisoning. An accident involving Dd~~d~~angerous Gg~~g~~oods could seriously injure persons and seriously damage property and/or the environment.

(5) **"Dangerous Work"** means Permanent or Temporary Works to be executed by the Contractor in Confined Spaces, Hazardous Areas, or Operational Areas or in the presence of or requiring the use of Hazardous Substances or Dangerous Goods or other work which is especially and potentially dangerous and which requires the use of specialist skills, safety equipment, safety measures and PPE.

(6) "**Diver**" means a worker working in water using underwater breathing apparatus which supplies compressed breathing gas at the ambient pressure.

For definition of further terms relating to Diving Works, refer to JSSS Chapter 10 [*Diving Works*].

(7) "**Earthwork Support**" means the permanent or temporary structural support arrangements to prevent the collapse or weakening of the surfaces of any excavation including for example basement, pit, trench or slope excavation.

(8) "**Elevated Access Structures**" means the substantial, elevated, temporary working platforms, usually comprised of structural steel columns, beams, framing and floor decking and used for performing the W~~w~~orks ~~at Sites~~ with difficult access or with restricted room for construction operations or steeply sloping or offshore Sites.

(9) "**Emergency Response**" means the requirements for the Contractor's response to any Emergency at the Site or Sites, as further referred to in JSSS 1.26 [*Emergency Response Plan*].

(10) "**Falling Objects**" means objects falling from heights including displaced, dropped, or blown Goods, tools, debris or waste material.

(11) "**Falsework**" means temporary supporting structures used to support parts of the Temporary Works or Permanent Works during construction, until the latter are stable, self-supporting and safe.

(12) "**Formwork**" means temporary containment structures for in-situ concrete and the immediately supporting members pending the concrete achieving sufficient strength to support its own weight and act safely as a structural component.

(13) **"Hazardous Substances"** means any substance, whether solid, liquid or gas, that may cause harm to health.

(14) **"Hazardous Areas"** means areas where there is a risk of explosion due to the presence of flammable or explosive gases, vapours, mists or dusts.

(15) "**Hoisting Operation**" means the selection of Hoisting Equipment appropriate to the purpose, preparation of Method Statements and Safety Plans and safely implementing the hoisting and placing of loads in position.

For definition of further terms relating to Hoisting Operations and associated rigging, refer to JSSS Chapter 5~~6~~ [*Hoisting and Rigging*].

(16) "**Operational Area**" means an area in a functioning process, treatment, manufacturing or like facility where the Contractor is required to perform ~~W~~work~~s~~ while the Employer is continuing operations.

(17) "**Other Properties**" means buildings, structures, ground surfaces and substrata, paved areas, roads, footpaths, fences, railways, waterways, drainage, utilities and other services or the like or any other property on the Site or outside the Site which~~, where so mentioned in JSSS~~ may be in some way affected by the execution of the Works.

(18) "**Personal Fall Arrest System**" or "**PFAS**" means a fall protection system that is designed to arrest a worker in a fall from a working level.

(19) "**Personal Fall Restraint System**" or "**PFRS**" (also referred to as a "Positioning Device System") means a fall protection system that is designed to restrict the movement of workers, preventing them from reaching the edge of any working area and therefore eliminating the risk of a fall.

(20) "**Personal Protective Equipment**" or "**PPE**" means equipment that is worn by the person to minimize exposure to hazards that cause serious workplace injuries and illnesses, which may result from falling objects, excessive noise, dust, contact with chemical, radiological, physical, electrical, mechanical, or other workplace hazards.

(21) "**Safety Belt**" means a sufficiently substantial strap to be secured about the waist for attaching to a lanyard or line to restrain the movement of workers and prevent them from reaching locations from where they may be at risk of falling.

(22) "**Safety Harness**" means a sufficiently substantial harness to be secured about the body for attaching to a lanyard, lifeline and deceleration device to safely arrest and support any worker during a fall.

(23) "**Scaffold**" or "**Scaffolding**" means a temporary structure or structures that provide access on or from which persons work or to support Goods.

(24) "**Skill Training"** means additional training to be provided by the Contractor for the ~~counterpart~~ Contractor's Personnel to develop and improve their trade skills in performing their work at the Site and shall include OJT and theoretical training in accordance with JSSS 1.21 [*Skill Training*]. Such training shall also include examining and testing by the Contractor and certification of attainment in such skills.

(25) "**Spotter**" means a member of the Contractor's Personnel who is generally responsible for warning other Contractor's and Employer's Personnel and other persons and keeping them away from working operations and areas, for assisting drivers of trucks and operators of ~~other~~ Contractor's Equipment in positioning their vehicles and equipment particularly when reversing, positioning or hoisting, and such further duties as are assigned to them in JSSS ~~Section~~ 2.4 [*Spotters Flagmen and the Like*].

Any reference to a "Spotter" in JSSS shall also be deemed to include a reference to a banksman or, flagman ~~or signaller~~.

(26) "**Trade Effluent**" means any liquid waste (effluent) that is discharged from premises being used for a business, trade or industrial process, other than surface water and domestic sewage.

(27) "**Unexploded Ordnance**" or "**UXO**" shall mean unexploded bombs, or explosive remnants of war or explosive weapons(such as bombs, shells, grenades, land mines, naval mines, cluster munition, and the like) that did not explode when they were employed and still pose a risk of detonation, sometimes long after they were used or discarded.

(28) "**Working Platform**" means a platform on or within a ~~scaffold~~ Scaffold that is intended and designed to support persons or Goods.

A1.1.3 The following abbreviations of technical terms shall have the meanings stated:

AED	Automatic External Defibrillator
BMGV	Biological Monitoring Guidance Values
CPR	Cardiopulmonary Resuscitation
ODA	Official Development ~~Aid~~ Assistance
OJT	On the Job Training
PFAS	Personal Fall Arrest System
PFRS	Personal Fall Restraint System
PPE	Personal Protective Equipment
TBM	Tool Box Meetings
TWA	Time Weighted Average
WEL	Workplace Exposure Limits

A1.1.4 The following abbreviations of standards, codes and the like shall have the meanings stated:

ACI	American Concrete Institute
ANSI	American National Standards Institute
ASHTO	American Association of State of Highway Transportation Officials
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials.
BS	British Standard
BS EN	British Standard European Norm
HSE	UK Health and Safety Executive
ISO	International ~~Organisation~~ Organization for ~~Standardisation~~Standardization
ILO	International Labour Organization
JIS	Japanese Industrial Standards

コメントの追加 [J27]: signaller は削除したほうが良いと思える。singaller が登場するのは 5 章 Hoisting のところだけだが、そこでは Rigger として的確であるものを singnaller というと定義している。

Rigger と Spotter では Qualification に差があるように思われる。

Annex 1.2: Content of Bid Stage Safety Plan

A1.2.1 This Annex lists the required contents for the Bid Stage Safety Plan as referred to in JSSS 1.7 [*Contractor's Safety Plans*]. Unless otherwise sSpecified in the Particular Safety Specification, the Contractor shall follow this format and structure in the Bid Stage Safety Plan. The same format and structure shall be used later for the ~~Commencement Stage Safety Plan~~Baseline Safety Plan but with the contents ~~and~~ developed as necessary to show the required detail.

A1.2.2 The Bid Stage Safety Plan shall be an outline plan but it must cover each of the items listed below with sufficient detail provided to demonstrate that the Bidder understands the requirements and indicates the Bidder's intentions, so that this can be understood and properly evaluated.

(1) Description of the Works

A description of the Works supported by overall layout plan(s) to provide a clear understanding of the overall layout and content of the Works and showing main construction items and areas, roads, Site access and egress locations, working areas, storage areas, temporary offices, laydown areas, warehouses and like facilities and including a summary of principal work items and significant quantities, etc.

(2) Bidder's Corporate Policy on Health and Safety Management

A description of the Bidder's corporate health and safety management policy covering the aims and intentions for improving the level of health and safety. The policy shall include a description of the purpose of health and safety (prevention of occupational accidents, maintenance of physical and mental health of workers, etc.), a description of the basic company policies on risk assessment and health and safety management.

(3) Health and Safety Management System, Responsibility and Authority of Bidder's Personnel

A description of the health and safety management organisation at the Site headed by the Bidder's Health and Safety Officer ~~at Site~~ (HSO) and showing the approximate numbers, responsibilities and authority of any other Contractor's Personnel involved in health and safety management at the Site.

A description of the responsibilities and authority of the Bidder's head office health and safety personnel together with the communication procedures for contact and support for the Site safety teams.

(4) Health and Safety Laws

A list of Laws (including all standards) of the Country which require the Bidders compliance for the health and safety of his workers and for the health and safety management of the Works. If the Contractor considers any parts to be superseded by JSSS then the relevant Clause number of JSSS shall be inserted.

(5) Bidder's Safety Management System

Refer to JSSS 1.5 [*Contractor's Safety Management System*]

Describe the scheme that the Bidder is proposing and how he intends to implement the same.

(6) Temporary Works

Refer to JSSS 1.37 [*Design and Management of Temporary Works*].

A Safety Plan for Temporary Works listing the principal items, describing the content, and specifying the outline of safety measures to be applied to ensure compliance with the requirements.

(7) Temporary Facilities on Site

The plan shall include a description of the general health and safety rules (e.g. smoking areas, traveling speed on Site, cleanliness, tidiness, latrines, wash rooms, shelters, etc.).

(8) Safety Measures for Contractor's Design of the Permanent Works

If, under GC 4.1 [*Contractor's General Obligations*], the Contract specifies that the Contractor shall design any part of the Permanent Works, the Bidder shall provide a description of the arrangements for controlling risks arising from such design of the Permanent Works.

(9) Safety Plan for the Works

A Safety Plan for the whole of the Works with separate parts provided for each part of the Works, including descriptions of the likely risks and measures for preventing accidents on the Site.

(10) Dive Safety Plan

(Where Diving Works are included in the scope)

Refer to JSSS Chapter 10 [*Diving Works*]

A Dive Safety Plan in accordance with the requirements of JSSS Chapter 10, including a description of the arrangements at the Site of the Diving Works for emergency recompression/decompression.

(11) Safety Plan for Dangerous Work.

Refer to JSSS 1.22 [*Dangerous Work*]

A listing of any Dangerous Work which will be encountered on the Site and general details of the Safety Plan for such Dangerous Work by reference to JSSS Annex 1.1 [*Definitions and Abbreviations*] and GC 4.1 [*Contractor's General Obligations*].

(12) Permit to Work System

Refer to JSSS 1.23 [*Permit to Work System*]

A listing of all high-risk areas of the Works that shall be subject to the Permit to Work System together with a description of proposed procedure.

(13) Safety Measures for Contractor's Equipment

Refer to JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*]

A description of the procedures for inspecting and maintaining the Contractor's Equipment together with all spare parts, including inspections prior to shipment, after arrival at the Site and during use to ensure that all Contractor's Equipment at the Site is maintained in a safe, efficient, non-polluting and acceptable condition. It shall include a general description of all regular maintenance and repair activities.

(14) Proposed Health and Safety Incentive Scheme

Refer to JSSS 1.34 [*Health and Safety Incentive Schemes*]

A description of the Proposed Health and Safety Incentive Scheme, designed to encourage conscious consideration of health and safety by Contractor's Personnel and to reward improvement.

(15) Safety Information Sharing and Communications Policy

A description of the information sharing and communication systems for health and safety within the organisation of the Contractor and between the Contractor and Employer, Engineer and relevant government agencies, etc. Reference shall be made to the various health and safety meetings described in JSSS.

A description of safety management activities for Contractor's Personnel shall be included together with the method for giving and receiving feedback and opinions regarding health and safety.

(16) Health and Safety Equipment, Facilities and Personal Protective Equipment (PPE)

Refer to JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*]

A description of the intended policies for the deployment of safety equipment, facilities and PPE to reduce health and safety risks, detailing the items and methods for providing and replacing (when worn, lost or damaged) general PPE and the use of additional PPE for particular working locations, environments and conditions.

(17) Site Inspection Plan

A description of the methods for Site inspections by the HSO, types of inspection and frequency.

The description shall also include the methods for reporting, recording and utilising results and also for posting warnings, no entry notices, giving instructions and stopping work.

(18) Site Security

A description of the proposed Site security methods explaining how to access to the Site by third parties, neighbours, nearby residents and any trespassers upon the Site will be prevented or (if and when applicable) permitted.

The description shall include the provision and control of entry and exit gates, barriers etc., security posts, security patrols and any other measures to reasonably ensure the security of the Site.

(19) Policy for Preventing Traffic Accidents

A description of the measures to be implemented for the prevention of traffic accidents on the public roads outside the Site and on roads and all other trafficked areas within the Site.

A description of the measures to be implemented to prevent workers riding in the back of pick-ups or trucks, or boarding or alighting from them near the Site, compulsory wearing of seat belts~~, systems of warning, punishment and dismissal for non-compliance should also be included~~.

(20) Reporting Procedure for Unsafe Conditions and Behaviour

A procedure for the reporting of unsafe conditions and unsafe behaviour on the Site (including near-misses) together with improvement actions including instructions, implementation and the recording of improvement measures.

(21) Accident Response Plan

Refer to JSSS 1.24 [*Accident Response Plan*]

The Plan shall describe the facilities to be provided and also cover the preparation and submission of the accident report, describing when an accident report will be prepared and submitted, the method of investigation of causes, planning and implementation of preventive measures against recurrence.

(22) Health Care Plan

Refer to JSSS 1.36 [*Health Matters*]

A description of the proposed facilities, furniture and equipment for rest stations, restroom, dining facilities, canteens, sanitary facilities, sports and leisure facilities, shower facilities, changing room etc..

A health care plan with services and facilities for maintaining the health and occupational health of all Contractor's Personnel.

(23) Environmental, Temporary Works and Structural Monitoring Plans

Refer to JSSS 2.1.7 [*Monitoring and Records*]

A description of the proposed monitoring equipment, instruments, Contractor's Personnel and methods for monitoring and control of the working environment, the performance of the ~~Temporary~~ Works and the avoidance of damage to ~~other~~ Other ~~properties~~Properties.

(24) Fire Response Plan

Refer to JSSS 2.8 [*Fire Prevention*]

Details of the fire prevention services to be provided at the Site.

~~The Fire Response Plan required by JSSS 2.8 [*Fire Prevention*].~~

(25) Emergency Response Plan

Refer to JSSS 1.26 [*Emergency Response Plan*]

Details of the Emergency Response Plan.

(26) Monitoring and Review of Health and Safety Management Activities

The procedures for monitoring and reviewing the purpose, method, timing, utilisation of results, development, etc. of health and safety management activities such as safety inspections, ~~morning~~ TBM~~toolbox meetings~~, 5S activities (refer to JSSS 1.15 [*Contractor's Safety Management Activities*]).

(27) Safety Induction Training

Refer to JSSS 1.20 [*Safety Induction Training*]

An outline description of the required safety induction training for all proposed health and safety training plans, describing methods, facilities, time, teaching materials, policies for selecting trainers, etc. and covering safety induction.

Details of special training required for Dangerous Work~~s~~ shall also be included.

(28) Skill Training

Refer to JSSS 1.21 [*Skill Training*]

An outline description of the proposed S~~s~~kill T~~t~~raining plans for local counterpart Operation Leaders, describing OJT and classroom components, facilities, participants, time, teaching materials, policies for selecting trainers and the counterparts.

(29) Legal Requirements

A description in brief with references to the legal requirements and remedies in the Country for injuries and death at work and for persons affected by illness, together with a summary of any workmen's accident compensation insurance or stating that there are no such legal requirements if that is the case, and any other legal obligations and remedies.

Annex 1.3: Additional Contractor Forms

Attached Forms:

Form JSSS/BSD - Bidder's Safety Declaration

Form JSSS/SAR - Sample Accident Report

Form JSSS/BSD - Bidder's Safety Declaration

[This form is to be inserted in the Bidding Documents after the existing Form-ACK, with new page number, renumbering existing pages appropriately and inserting suitable reference in the Table of Forms]

I, *[insert name and position of authorised signatory]*, being duly authorised by *[insert name of Bidder/members of joint venture ("JV")]* (hereinafter referred to as the "Bidder") to execute this Form JSSS/BSD, hereby declare our commitment to comply with the health and safety requirements of the Contract.

The Bidder declares, that if selected to undertake the Works, he will ensure that the Site is established and maintained as a healthy and safe workplace for the Contractor's Personnel, the Employer's Personnel and all other persons entitled to be thereon or that may be affected by operations thereby.

The Bidder hereby declares that after ~~full~~ investigation and research of resources within the Country, he has given full and careful consideration and fully accepts the need and has made full allowance for the importation, the use upon the Works and subsequent re-export in accordance with the Contract of all required Contractor's Equipment, Temporary Works, PPE and all other safety resources necessary to maintain the ~~highest achievable~~ international level of health and safety upon the Works.

The Bidder declares that he will mobilise for use upon the Works:

1. New and up to date PPE and other safety equipment ~~and Temporary Works~~ of an international standard, suitable and fit for the purpose for which it is intended, in full working order, complete with all necessary spare parts and consumables, suitable and safe for use on the Works, all to meet with the consent of the Engineer and in sufficient quantities to allow for replacement in the case of being worn-out, lost or damaged, and
2. New or ~~up to date~~ recent Contractor's Equipment and Temporary Works, all suitable and fit for the purpose for which it is intended, in full working order, clean, non-polluting, complete with all necessary spare parts and consumables, suitable and safe for use on the Works.~~;~~

~~and that all of the above will be used correctly and for the purpose intended.~~

The Bidder further declares that he shall:

1. Carry out regular and thorough safety inspections, find and correct any health and safety problems on the Works, primarily by trying to eliminate or reduce hazards through making feasible changes in working conditions rather than relying on PPE to ~~eliminate or~~ reduce risks.
2. Employ workers with appropriate skill, educational or vocational qualification, experience and capability.
3. Fully inform workers about hazards.
4. Provide health and safety training to all Contractor's Personnel, any ~~subcontractors~~Subcontractors, suppliers and others for whom the Contractor is responsible, the Employer's Personnel and all other persons who are entitled to be on the Site, in a language and vocabulary they can understand.
5. Keep accurate records of work-related injuries and illnesses.
6. Perform tests in the workplace, such as air sampling as required by the Safety Specification.
7. Provide required new PPE at no cost to workers and ensure that this is used properly, kept in good condition and replaced in the case of being worn-out, lost or damaged.
8. Assign only workers who, in consideration of health, physical condition and age are suited to the operations to which they are assigned.

9. Provide eyesight, hearing and mobility examinations and other medical tests required by the Contract.

10. Post injury and illness information and data where workers can see them.

11. At occurrence of any accident, promptly inform the Engineer and thereafter submit details of the accident within twenty four (24) hours after its occurrence~~Inform the Engineer and submit details of any accident as soon as practicable and in any event no later than twenty four (24) hours after the occurrence and, in the case of a fatal accident shall inform the Engineer immediately~~.

12. Not retaliate against workers for using their rights under the Laws of the Country.

The requirements of this declaration shall apply fully to all of the Bidder's proposed Subcontractors, suppliers and specialists engaged by the Bidder on the Works, for whom the Bidder shall remain fully responsible.

The Bidder also affirms that if the Bid is successful, the Health and Safety Officer ~~at Site~~, named below and also included in Bidding Form, Form PER -1: Proposed Personnel, unless otherwise required by the Bidding Documents, shall be assigned from the Commencement Date, full-time upon the Site ~~of the Works~~ and shall not be replaced or substituted at any time except with the consent of the Engineer.

If the Bid is accepted the Bidder agrees that this Declaration ~~together with all other documents comprised in the Bid Stage Safety Plan~~ shall form a part of the Contract, at and from which time all references to "Bidder" shall be construed as references to "Contractor".

コメントの追加 [岡本28]: Bid Stage Safety Plan は Contract Documents を構成しない。

Signed:	Signed:
_____	_____
(Bidder's Official Representative)	(Bidder's Proposed Health and Safety Officer ~~at Site~~*) Or Bidder's Head Office Health and Safety Manager*)
Name:	Name:
_____	_____
Date: _____	Date: _____

*(*Delete as applicable)*

Form JSSS/SAR – Sample Accident Report

[The form is to be completed by the Contractor, submitted to the Engineer when applicable and in accordance with JSSS 1.25 [Measures at the Time Accidents Occur]

CONTRACT INFORMATION:	
1) Name of Project:	
2) Project Reference Number： （e.g. L/A No.~~, G/A No.~~）	
3) Contract Number:	
4) Package Description:	
5) Employer: (name and nationality)	
6) Contractor: (name and nationality) (If casualty(ies) is(are) belonging to ~~subcontractor~~Subcontractor,) Subcontractor: (name and nationality)	
7) Engineer: (name and nationality)	
8) Press Report about the Accident (Name of Media, Date, and Copy of Report to be attached)	

(above to be inserted before all reports)

FIRST REPORT INFORMATION:	
1) Date and time of accident occurrence (local time):	
2) Date and time of first verbal report to Engineer:	
3) Exact location of accident occurrence:	
4) Brief background and apparent cause:	
5) (i) Number of casualty(ies)/ (ii) Information of casualty(ies) (Nationality, Age, Sex, Position, Experience Year)/ (iii) Description of injuries incurred	
6) Physical damages to the Works, Site and any properties of the third parties	
7) Present medical status of casualty(ies):	
8) Present work status:	
9) List attached information (e.g. Layout and sketch drawings, photographs, notes and report):	
10) Accident Report Submission Date	

SUBSEQUENT REPORT INFORMATION (POST-INVESTIGATION):	
1) Cause(s) of the accident:	
2) Counter-measures proposed by the Contractor to avoid recurrence of similar accidents and risks:	
3) Number of reported accident(s) occurred in the past one (1) year in the same Contract Package as the accident occurred:	
4) Number of reported near misses occurred in the past one (1) year in the same Contract Package as the accident occurred:	
5) Other Information:	

Report Prepared by: (name): _____ (sign) : _____ Report Submission Date(s) _____ Time: _____	Contractor's Health and Safety Officer (HSO)
Receipt acknowledged by: (name): _____ (sign): _____ Report Receipt Date(s) _____ Time: _____	Engineer

(above to be inserted with detail and signatures at end of each report)

CHAPTER 2: GENERAL SAFETY MEASURES

2.1 WORK ENVIRONMENT

Contractor's Personnel shall be provided with a safe and healthy occupational environment. The Contractor shall implement all necessary measures to ~~ensure this, taking particular care to~~ avoid the creation of and/or any contact with Hazardous Substances, intense noise, heat, cold or similar and potentially harmful conditions or to provide protection against such conditions.

2.1.1 Hazardous Substances

(1) Definitions

Refer to the definition of Hazardous Substances in JSSS Annex 1.1 [*Definitions and Abbreviations*]. ~~For the purposes of this definition, note that Hazardous Substances shall include dust of any kind when present at a concentration in air equal to or greater than:~~

~~10 mg/m3 (8-hour TWA) of inhalable dust; or~~

~~4 mg/m3 (8-hour TWA) of respirable dust.~~

コメントの追加 **[岡本29]:** この部分は繋がりがやはりおかしいので、Dust として 2.1.2 (3)に移す。

(1) Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any Hazardous Substances either existing on the Site, used in or encountered on the Works, the Contractor shall take necessary measures for work environment complying with the technical requirements specified in EH40/2005 Workplace Exposure Limits, (third edition published 2018), issued by HSE, including monitoring such substances to ensure that the ShortTerm and Long-Term exposure limits in HSE Table 1 are not exceeded.

2.1.2 Dust~~Compliance Standards~~

~~(1) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS~~Hazardous Substances ~~either existing on the Site, used in or encountered on the Works, the Contractor shall take necessary measures for work environment complying with the technical requirements specified in EH40/2005 Workplace Exposure Limits, (third edition published 2018), issued by HSE, including monitoring such substances to ensure that the Short Term and Long Term exposure limits in HSE Table 1 are not exceeded~~.

~~The Contractor shall monitor all substances and ensure that the Short Term and Long-Term exposure limits in HSE Table 1 are not exceeded.~~

(2) Dust

~~For the purposes of this definition, note that~~Among the other Hazardous Substances ~~prescribed in HSE Table 1,~~ dDust ~~shall include dust~~ of any kind when present at a concentration in air shall not be equal to or greater than:

(a) 10 mg/m3 (8-hour Time Weighted Average: TWA) of inhalable dust; or

~~(a)~~(b) 4 mg/m3 (8-hour TWA) of respirable dust.

~~(2)~~(1) ~~Asbestos~~

~~(a) The Contractor shall be aware that asbestos causes occupational fatalities. It is commonly found in older buildings frequently in ceiling and floor cavities, insulation, sprayed coatings, floor tiles and composites, asbestos cement sheets and roofing felt;~~

~~(b)~~(a) ~~If the scope of Works requires removal of any of the above materials then the Contractor shall check for asbestos content, then remove and dispose of such~~

~~materials in compliance with L143 Approved Code of Practice and guidance, for Managing and Working with Asbestos (second edition published 2013), issued by HSE; and~~

~~(c)~~(a) ~~If the Particular Safety Specification specifies that asbestos may exist at the Site and that the Contractor is responsible for the removal and disposal or if it is discovered during the execution of the Work and the Contractor is instructed by the Engineer to remove it, then the Contractor shall take measures in accordance with the requirements of JSSS 1.22 [*Dangerous Work*]; and comply with L143 Approved Code of Practice and guidance, for Managing and Working with Asbestos (second edition published 2013), issued by HSE; for the controlled safe removal and disposal of asbestos.~~

~~(3) Other Hazardous Substances~~

~~The Contractor shall comply with relevant HSE regulations with regard to health and environmental management and control of any other Hazardous Substances either existing on the Site, used in or encountered on the Works.~~

~~(4)~~(3) Prevention

(a) The Contractor shall prevent dust emission, by keeping the source moist and covering dust creating areas and materials with suitable dust-proof sheeting; and

(b) The Contractor shall provide all necessary Contractor's Equipment and Temporary Works to achieve this including water-bowsers, spraying equipment, extract ventilation and filtration equipment.

~~(5)~~(4) PPE

(a) If, in the opinion of the HSO, it is not reasonably practicable to reduce dust to acceptable levels, PPE (Breathing Aparates) shall be provided for all relevant Contractor's Personnel; and

(b) For details of PPE refer to JSSS 2.9.1 [*PPE*].

(5) Asbestos

(a) The Contractor shall be aware that asbestos causes occupational fatalities. It is commonly found in older buildings frequently in ceiling and floor cavities, insulation, sprayed coatings, floor tiles and composites, asbestos-cement sheets and roofing felt;

(b) If the scope of the Works requires removal of any of the above materials then the Contractor shall check for asbestos content, then remove and dispose of such materials in compliance with L143 Approved Code of Practice and guidance, for Managing and Working with Asbestos (second edition published 2013), issued by HSE; and

(c) If the Particular Safety Specification specifies that asbestos may exist at the Site and that the Contractor is responsible for the removal and disposal or if it is discovered during the execution of the Works and the Contractor is instructed by the Engineer to remove it, then the Contractor shall take measures in accordance with the requirements of JSSS 1.22 [*Dangerous Work*]; and comply with L143 Approved Code of Practice and guidance, for Managing and Working with Asbestos (second edition published 2013), issued by HSE; for the controlled safe removal and disposal of asbestos.

コメントの追加 [伊藤30]: 上記（3） （4）は粉塵を念頭に置いた記述なので、（2）と続きで記述した方がよく、Asbesto を後ろにもってきています
アスベスト対策については PPE まで含めて、文中で引用してある HSE で要求が明確になっているという理解です。

2.1.3 Poor Ventilation

(1) The Contractor shall inspect and carry out monitoring~~tests~~ to ensure that all working

areas have adequate and healthy natural ventilation.

(2) If any areas do not have adequate and healthy natural ventilation, the Contractor shall provide suitable and efficient mechanical ventilation systems with fans, ducting and all associated devices and services to improve the working environment to acceptable safe levels.

(3) If this is not completely possible then PPE (breathing apparatus) shall be used in accordance with the requirements of JSSS 2.9.1 (8) [*Respiratory Protection Equipment (RPE)*].

(4) The Contractor shall generally prohibit the use of internal combustion engines in internal areas. When the use of such engines is unavoidable, the Contractor shall provide exhaust systems which safely and efficiently collect, contain and expel exhaust gases to external areas and provide additional adequate ventilation.

2.1.4 Noise

(1) Compliance Standards

(a) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for noise exposure and control complying with the technical requirements specified in OSHA Subpart D—Occupational Health and Environmental Controls §1926.52 Occupational noise exposure; and

(b) The Contractor shall provide equipment such as, sound level meters, noise dosimeters, or octave band analysers to determine what sound levels exist and whether they are within the levels in Table D-2 or not.

(2) Preventive Measures

To prevent noise damage to Contractor's Personnel, which may occur when noise levels exceed 90 dBA (referred to as "intense noise" in JSSS), or if for any reason sound levels cannot be determined as above the Contractor shall:

(a) Reduce sound levels through feasible administrative or engineering controls to within the levels of Table 2.1.1: OSHA Table D-2: Permissible Noise Exposures of the OSHA Standard referred to above, if at all possible:

Table 2.1.1: OSHA Table D-2: Permissible Noise Exposures

Duration per day, hours	Sound level dBA slow response	Duration per day, hours	Sound level dBA slow response
8	90	1½	102
6	92	1	105
4	95	½	110
3	97	¼ or less	115
2	100		

(b) If such controls are not possible or if they fail to reduce sound levels within the levels of OSHA Table D-2, provide PPE (Ear Protection) for ~~all~~ relevant Contractor's Personnel as specified in JSSS 2.9.1 (7) [*Ear Protection*] in consideration of the noise level and length of noise exposure at the work area in accordance with the provisions of the OSHA Standard;

(c) Post warning signs at the work area to make all Contractor's Personnel aware that ear protection must be worn; and

(d) In all cases where the sound levels exceed the values shown OSHA Table D-2, a Continuing Effective Hearing Conservation Program specified in (3) below shall be implemented.

(3) Hearing Conservation Program

(a) The Contractor shall implement a hearing protection and conservation program whereby noise exposure levels are monitored in order to accurately identify any Contractor's Personnel that are exposed to noise at or above 90 dBA averaged over 8 working hours, or an 8-hour time TWA; and

(b) The Contractor shall~~-~~ monitor all workers whose noise exposure is equivalent to or greater than a noise exposure received in eight (8) hours where the noise level is constantly 90 dBA. The exposure measurement must include all continuous, intermittent, and impulsive noise within an 80 dBA to 130 dBA range and must be taken during a typical work situation. The Contractor shall choose the monitoring method that best suits each individual situation.ELCB

2.1.5 Further Requirements for Dangerous Work

Further to the requirements of JSSS 1.22 [*Dangerous Work*] and in relation to work in Confined Spaces, Hazardous Areas, or Operational Areas or in the presence of or requiring the use of Hazardous Substances or Dangerous Goods or other work which is especially and potentially dangerous, requiring the application of special skills, safety equipment, safety measures and PPE, the Contractor shall establish systems and procedures to ensure the safety of all Contractor's Personnel engaged upon or supervising or managing such Dangerous Work, and for this purpose the Contractor shall:

(1) Measure the concentration of oxygen, hydrogen sulphide, carbon dioxide, carbon monoxide, chlorine, chlorine dioxide, ~~trade~~ Trade ~~effluent~~ Effluent and any other potentially harmful materials, gases and chemicals, or other work environment items before starting any work.

(2) Safely isolate the supply and flow of any ~~trade~~ Trade ~~effluent~~Effluent, chemical or other potentially harmful and materials, gases and chemicals during the period of any work and safely reconnect or continue same after the work is finished.

(3) Improve and maintain the work environment for example by mechanical ventilation and filtration if the result of the work environment measurement in (1) above violates the limits specified in ~~imposed by~~ this JSSS Chapter 2 [*General Safety Measures*].

(4) For further information on the removal and disposal of Hazardous Substances refer to JSSS 1.22 [*Dangerous Work*].

(5) For further information on prohibition of entry to areas where Dangerous Work is being performed refer to JSSS 2.3 [*Prohibition of Entry - Dangerous Work*].

2.1.6 High and Low Temperatures and Humidity

(1) To avoid health hazards due to excessively hot, cold or humid working environments, the Contractor shall improve the work environment~~environmental working conditions~~ for all Contractor's Personnel by:

(a) Providing temporary covers and shade to protect workers from rain, hail, snow, sunlight and reflection from the surrounding wall and ground;

(b) Providing protection from any heat or cold source and provide adequate ventilation, heating or air conditioning for indoor working;

(c) Where permitted by the Engineer in hot climates, carrying out work during the

night when temperatures and humidity are lower;

(d) Providing drinking water and supplement that allow salt replenishment at the work place;

(e) Providing a rest station with heating, air conditioning or shade near the work place, or providing other facilities equipped with accommodation that allow personnel who fall ill to lie down and recover;

(f) Allowing work breaks and reducing excessive and continuous working times; and

(g) Allowing an initial acclimatisation period for Contractor's Personnel to become used to the heat or cold.

(2) The Contractor shall ensure that workers wear moisture-permeable and loose-fitting clothing in hot climates and suitably warm, insulated and waterproof clothes in cool or cold climates.

(3) If any undesirable conditions are detected, the Contractor shall take appropriate measures to correct the situation, allowing Contractor's Personnel to rest or temporarily stop the work until the conditions improve.

~~(4) The Contractor shall ensure that all Contractor's Personnel are properly dressed in suitable insulated cold weather clothing to work safely in low temperatures.~~

~~(5)~~(4) The Contractor shall monitor the health of Contractor's Personnel before and during the work and allowing Contractor's Personnel to take a rest and/or rehydrate and shall act if any abnormalities are observed.

2.1.7 Monitoring and Records

(1) The Contractor shall monitor the working environment and prepare regular daily, weekly and monthly records of dust, noise, air and water quality, inadequate natural ventilation, rainfall, snowfall, temperatures, humidity, wind speed and direction regularly until the Taking-Over Certificate is issued for the entire Works~~throughout the Time for Completion of the Works~~.

(2) The procedure for preparation and submission of such records shall be as stated in JSSS 1.32 [*Health and Safety Records*].

(3) The Contractor's monitoring and recording shall also cover:

(a) The pre-existent conditions for all periods of Dangerous Work;

(b) Dust at work places where excessive dust and waste material such as dirt, rocks, minerals, metals, carbon, cement, etc. is generated;

(c) Noise levels at work places that generate intense noise;

(d) Ventilation volume, temperature and concentration of carbon dioxide, carbon monoxide, oxygen, hydrogen sulphide, other toxic or dangerous gases at work places including tunnels and deep pits and Confined Spaces; and

(e) Illuminance at work place and walkways.

(4) The above monitoring shall be conducted separately from the environmental monitoring that may be required by the Laws of the Country and any environmental monitoring that may be separately specified in the Contract.

(5) For the following measurement items, if the following limits are violated, the Contractor shall take the measures prescribed in JSSS 1.22 [*Dangerous Work*], JSSS 2.1.5 [*Further Requirements for Dangerous Work*] and JSSS 2.3 *[Prohibition of Entry – Dangerous Work]*.

(a) Values of limits of measurement items:

(i) Oxygen concentration less than 19.0% and more than 23.5%;

(ii) Hydrogen sulphide concentration more than 10 ppm (short-term exposure limit) or 5 ppm (long term exposure limit);

(iii) Carbon dioxide concentration more than 15,000 ppm (short-term exposure limit) or 5,000 ppm (long term exposure limit); and

(iv) Other Hazardous ~~S~~substances either existing on the Site, used in or encountered on the Works: v~~V~~alues of limits ~~for other substances~~ given in EH40/2005 Workplace Exposure Limits (third edition published 2018), issued by HSE, Table 1.

(b) Combustible gas and vapour concentration: in excess of 10% of the lower limit of flammability.

(6) The Contractor shall also monitor any vibration, settlement and other adverse effects arising out of the execution of the Works to ascertain if these are causing any adverse effect to the Works or to Other Properties whilst ensuring that no damage or weakening is caused.

(7) Monitoring shall be accomplished by the Contractor through regular inspection, measurement, survey, instrument monitoring and recording as determined by the nature and scope of the Works taking account of any additional requirements which may be specified in the Particular Safety Specification.

(8) Works that require monitoring shall include the following where any risk of damage is perceived by the HSO or Engineer:

(a) Excavation Works;

(b) Foundation Piling Works;

(c) Ground improvement;

(d) Temporary ground dewatering;

(e) Temporary Works such as major items of Earthwork Support, Cofferdams ~~Dams~~ and the like; to demonstrate that they are performing safely, to the designed limits and for the intended purpose;

(f) Other parts of the Works required to evidence the Contractor's compliance with the Safety Plan~~Contract~~; and

(g) Other parts of the Works which may be specified in the Particular Safety Specification.

(9) The Contractor shall prepare a monitoring plan as a part of the Safety Plan or Method Statement for the above Works which shall describe:

コメントの追加 [岡本31]: for the works hereinabove?

(a) The Contractor's proposed monitoring criteria for vibration, settlement and all other potential effects of the Works, which by the Contractor's own calculations will ensure that no damage or weakening is caused to Other Properties;

(b) The types, locations and numbers of monitoring instruments and other equipment;

(c) The measurement frequency and recording methods; and

(d) The countermeasures to be applied when the actual measured values are close to or exceed the various minimum, intermediate and maximum criteria.

(10) The Contractor shall:

(a) Provide and maintain all survey equipment, monitoring and recording equipment to provide comprehensive, accurate and contemporary or live data with records, showing the performance characteristics of the Works;

(b) Provide qualified staff to perform the monitoring;

(c) Maintain and calibrate the monitoring instruments and equipment as necessary throughout the execution of the Works;

(d) Perform survey and monitoring on a regular basis throughout the execution of the Works;

(e) Confirm the occurrence and extent of any adverse effect of the Works execution by means of regular inspections of all Other Properties;

コメントの追加 [岡本32]: "to execution of the Works" or "caused by execution of the Works" whichever is appropriate?

(f) Take the measures prescribed when necessary to comply with the Contractor's obligations, propose remedial measures and implement such measures after receiving the consent of the Engineer;

(g) Evaluate the measurement results and modify the monitoring criteria as necessary; and

(h) Submit an evaluation report if necessary with any changes to the Safety Plan for Works to the Engineer before proceeding with the Works.

(11) Requirements for instrumentation systems shall be as follows:

(a) The Contractor shall select instruments and measurement methods that meet the purpose of the monitoring~~measurement~~;

(b) The Contractor shall determine locations and numbers of measurement points which meet the purpose of monitoring~~measurement~~ and need for safety management. The locations of measurement shall be where measurement can be continuously made throughout the period of works are provided;

(c) The instrumentation shall be regularly calibrated and protected against damage by the Contractor;

(d) The HSO and other relevant Contractor's Personnel shall ~~monitor~~ analyse the data and take all necessary corrective action consequent to such monitoring to ensure the continued compliant and safe performance of the Works; and

(e) The Engineer shall be invited to attend the inspections and data collection to ensure the Contractor's compliance in accordance with JSSS 1.10 [*Engineer's Safety Representative*], JSSS 1.11 [*Safety Compliance Instructions from the Engineer*] and JSSS 1.16 [*Joint Site Safety Inspections*].

(12) Management based on Monitoring and Inspection

(a) Management by Visual Inspection:

If and when the Contractor finds any irregularity through visual inspection, the Contractor shall take necessary measures in accordance with the degree of abnormality, including detailed research, urgent countermeasures, evacuation of workers. ~~including verification of inspection results through measurement, survey or added instrumentation and the implementation of urgent countermeasures.~~

(b) Management by Instrument Measurement:

Unless otherwise specified in the Particular Safety Specification, the Contractor shall determine control limit values based initially upon the allowable displacement or stress in the design, then the following stepwise control values shall be established by the Contractor and necessary measurement and related actions shall be taken.

The Contractor shall provide the following three critical limits in his arrangements for the performance of the Works or in his design of the Temporary Works, and shall take appropriate action when any of these limits is reached:

(i) Primary Limit:

When measured values reach this limit, the Contractor shall increase ~~the incidence and~~ the degree of care on the incident over inspections and commence preparing countermeasures which will be implemented if and when the measurement value reaches the Secondary Limit and obtain the Engineer's consent for such countermeasures.

The Contractor shall submit the measured values on a weekly basis to the Engineer unless otherwise instructed by the Engineer.

(ii) Secondary Limit:

When measured values reach this limit, the Contractor shall stop the relevant part of the Works and implement the countermeasures.

(iii) Control Limit:

When measured values reach this limit, the Contractor shall immediately stop the relevant part of the Works, advise all affected persons, prohibit entry of any unauthorised persons to the affected area(s), take ~~radical~~ counter measures to prevent failure, review and revise the Method Statement and Safety Plan, and comply with the Engineer's Instructions before proceeding.

(13) Contractor's Responsibility against damage to Property~~Contract Compliance~~

Notwithstanding the requirements of this subclause of JSSS, the Contractor is reminded of his overall responsibility under the Contract in respect of damage to property.

The Contractor shall satisfy himself that the monitoring criteria and requirements specified above, or in other respective Chapters of JSSS and/or in the Particular Safety Specification, are sufficient to comply with his obligations under the Contract and he shall take any additional measures necessary to avoid damage to property.

コメントの追加 [伊藤33]: Clause ?

1. Chapter
1.1 Section
1.1.1 Clause
1.1.1(1) Sub-Clause
1.1.1 (1) (a) paragraph

2.2 RISK CONTROL AROUND THE SITE

2.2.1 General

(1) The Contractor is reminded of his obligations under GC 4.8 [*Safety Procedures*] and GC 4.22 [*Security of the Site*] to keep any unauthorised persons off the Site, and without prejudice to such obligations the Contractor shall take all necessary further measures under this Section to prevent any such unauthorised persons (including third parties, neighbours and particularly children) who may for example be living or working around the boundary of the Site or adjacent thereto, from entering the Site.

(2) In addition~~For the purpose of (1) above~~, t~~T~~he Contractor shall help to maintain ~~maintain~~ communications with the local community near the Site in accordance with JSSS 2.2.6 [*Community Relations*]~~inform the Engineer and request that the Employer takes necessary action including removal of any third parties and/or neighbours who may establish themselves outside the Site along and for example against the Site boundary during the Time for Completion of the Works for the potential purpose of accessing the Site~~.

(3) In addition to taking necessary action to keep any unauthorised persons off the Site the Contractor shall fully inform the relevant local authorities (e.g. police force) and if necessary request their intervention~~assistance~~ to remove any trespassers from the Site. When requested by the Contractor, the Employer shall provide reasonable assistance to coordinate with such local authorities.

~~(4) Such measures shall include (but are not restricted to) the following requirements of this Section.~~

~~(5)~~(4) The Contractor shall also prevent access to the Site by any persons, including Contractor's and Employer's Personnel and any others, who are under the influence of drink or drugs and also to prevent alcohol and drugs from being brought onto the Site.

2.2.2 Working Area Perimeter

(1) Unless otherwise specified in the Particular Safety Specification, the Contractor shall:

(a) Enclose the perimeter of all working areas with secure fencing to prevent access to the Site by unauthorised persons;

(b) Maintain all such fencing in good condition, until such fencing is no longer needed and reinstate all affected areas;

(c) Provide secure entry points with lockable gates or barrier; and

(d) Provide and maintain signs clearly advising/warning against entry.

(e) Provide watchmen and lighting where, when and to the extent necessary to apprehend and evict any unauthorised persons (particularly children) from the working area, where such persons have breached the Site Perimeter and working area perimeter fencing.

(2) Unless otherwise specified in the Particular Safety Specification, working area perimeter fencing shall be temporary, constructed of new and durable materials and fit for the purpose intended.

(3) Full details of working area perimeter fencing including scope, dimensions and specifications shall be given in the Method Statement.

(4) The Contractor shall provide fall prevention measures such as temporary covers or barriers, with lighting and warning signs for any excavations outside the working area perimeter.

コメントの追加 [伊藤34]: これは Site に対する第三者の立ち入り禁止を論じている部分であり、Site 自体の possession や Access を論じているわけではないので、不法・合法いずれにせよ住民を立ち退かせるところまで発注者に要求することはできないのではないか？
するとできることは周辺住民との良好な関係を維持することにつきる。

コメントの追加 [J35]: 範囲が広く Requirement を特定し辛い

2.2.3 Measures for Road Occupation

(1) When the Contractor carries out work on, in or under a public road, or uses it for access to the Site, ~~prior to commencement of any such work and~~ based on the prior coordination with the relevant authorities by the Employer, in order to ensure safe and smooth traffic flow on the road, the Contractor shall:

(a) Prepare a road usage plan and submit it to the relevant authorities, and obtain necessary permits, prior to road use;

(b) Obtain the approval and necessary permits of the relevant authorities before any road closure, diversion or other traffic restrictions are applied;

(c) Take necessary measures to ensure safe and smooth traffic flow on the road during the entire road usage period; and

(d) Take safety measures specified in JSSS 2.2.2 [*Secure Working Area Perimeter*].

(2) ~~Unless otherwise instructed by the Engineer, t~~The Contractor shall provide a Spotter (refer to JSSS 2.4 [*Spotters, Flagmen and the like*] full time upon the Works (including all non-working periods) so that the Contractor's Personnel and the general public including road users, pedestrians and all others are effectively informed, controlled and protected against accident.

2.2.4 Temporary Road Signs

(1) For disseminating necessary information on roads adjacent to the Site, the Contractor shall:

(a) Provide standard road signs in the same colours and format as those used by the relevant authorities in the Country such as construction signs, direction, speed restriction, detour and roadwork signs;

(b) Signs shall be set in suitable places so as to give due warning, information and guidance to road-users and pedestrians alike; and

(c) Signs shall be fit for purpose, fixed firmly so as not to break, fall or otherwise be damaged due to vibration, wind or other natural causes.

(2) Maintain the various signs regularly, including repairing, painting and cleaning. Ensure that all are clearly visible, well-lit or made of reflective materials so that they can be seen clearly from a distance at night.

2.2.5 Traffic Accident Prevention at Site Entrance

(1) In order to prevent traffic accidents occurring at or near the Site entrance, the Contractor shall:

(a) Provide warning signs adjacent to the Site entrance to inform drivers on the public road that the Site entrance exists and to inform of the possible emergence of construction traffic/equipment;

(b) Provide temporary traffic signals or Spotters for safe control of traffic (including construction traffic) and Contractor's Equipment, Contractor's Personnel and the general public including road users, pedestrians and all others to protect against accident;

(c) Provide designated areas for anyone entering the Site to board or be discharged from public and private transport;

(d) Provide pedestrian crossings and passages, with Spotters ~~manned or with~~ or traffic signals; and

~~(e) Prevent vehicles entering or exiting the Site carrying persons in the back of trucks, pick-ups or the like.~~

コメントの追加 [J36]: and the like?

コメントの追加 [J37]: 4.3.3（2）（k）に荷台に人を乗せないという記述があるので、あえて現場の入り口に限定した記述を設ける必要はない。削除したほうがよい。

(2) Priority shall be given to pedestrians and passing vehicles at the entrance.

2.2.6 Community Relations

(1) In order to maintain communications and improve safety for the local community near ~~to~~ the Site, the Contractor shall:

(a) Cooperate with the Employer and assist in dissemination of comprehensive information about the Project to the nearby community; and

(b) If so required by the Particular Safety Specification, Conduct traffic safety and awareness activities for the local community.

(2) The Contractor shall ensure that all Contractor's Personnel are informed of the safety rules and any precautions regarding the safe passage of construction vehicles/equipment especially when children are arriving at or leaving from school.

(3) The Contractor shall report immediately to the Engineer if the local community raises any complaints or issues any requests to the Contractor.

2.3 PROHIBITION OF ENTRY ~~– DANGEROUS WORK~~

2.3.1 General

(1) The Contractor shall prohibit unauthorised personnel from entering areas where Dangerous Work is being undertaken

(2) For general requirements of Dangerous ~~work~~ Work refer to JSSS 1.22 [*Dangerous Work*].

(3) "Unauthorised personnel" in this context shall mean Contractor's Personnel, Employer's Personnel and any other persons who have not been properly trained or who are not properly equipped with PPE (including rescue equipment) and who are not carrying and displaying an official permit issued to them by the HSO, for that specific work place in accordance with JSSS 1.23 [*Permit to Work System*].

(4) Workers assigned to Dangerous Work shall be subject to the Permit to Work System described in JSSS 1.23 [*Permit to Work System*].

2.3.2 Demarcation and Requirements

(1) The Contractor shall clearly demarcate all areas where Dangerous Work is being carried out by the use of appropriate fencing, barriers, signage and lighting and shall control access to such areas with the full-time assignment of a Spotter.

(2) The Spotter shall be established outside the working area, and shall prevent the entry of unauthorised personnel and shall constantly communicate with and monitor the safety of assigned workers. The Spotter shall be equipped with radio or other efficient means of communication to act as a liaison with other relevant Contractor's Personnel.

(3) No-one, no matter their position of authority, should be allowed to enter, if not so authorised to do so and the Contractor shall ensure that Spotters do not face any adverse repercussions because of a refusal to allow access.

2.3.3 Examples of Dangerous Work

For clarity "Dangerous Work" shall also include:

~~(1) The detection, safe removal and disposal of Unexploded Ordnance as referred to in JSSS 1.38 [*Unexploded Ordnance (UXO)*].~~

~~(2)~~(1) The delivery, storage and/or use of harmful, dangerous or explosive materials, chemicals, gases or the like to be used in the Works or for use in or which are the product of the manufacturing or treatment process of the finished Works or in Operational Areas.

~~(3)~~(2) Welding work, hot cutting work or demolition work.

~~(4)~~(3) Work in areas where Contractor's Personnel are already performing work that may become more hazardous if anyone other than authorised personnel enter, for example ~~scaffolding~~ Scaffolding erection, use and dismantling, and areas where Contractor's Equipment is operating and the HSO considers there to be a risk of any accident.

~~(5)~~(4) Work in areas where very hot or cold objects are being handled and/or the working area itself is extremely hot or cold.

~~(6)~~(5) Work in areas where there is potential exposure to harmful radiation or ultrasound.

~~(7)~~(6) Work in areas where the concentration of gases, dust and any other dangerous or harmful materials exceed the limits specified in JSSS 2.1 [*Work Environment*].

~~(8)~~(7) Work in areas where Permanent Works or Temporary Works have not been performed completely or properly and/or which are therefore unsound, unstable or unsafe.

~~(9)~~(8) Work in areas under, within or adjacent to existing buildings, roads, bridges or other structures which are unstable and/or unsafe and which pose risks to safety unless additional support and strengthening measures are implemented.

コメントの追加 [J38]: この内容がここで出てくることに唐突感あり。JSSS1.22 に 2.3.3 全体を移動させてください。

~~(10)~~(9) Work in~~or work~~ areas which may have been damaged and otherwise rendered dangerous by adverse climatic, natural or seismic conditions.

2.4 SPOTTERS~~, FLAGMEN AND THE LIKE~~

2.4.1 Definitions

For the definition of "Spotter", refer to ~~In accordance with the definition provided in~~ JSSS Annex1.1 [*Definitions and Abbreviations*]~~, a reference to either "Spotter" or "Flagman" in JSSS shall be deemed to include a reference to the other or both and therefore references in this Chapter are to Spotters, which shall be deemed to include both.~~

コメントの追加 **[YM39]:** 文章中に Flagman という言葉が使われていません。

2.4.2 Duties

Duties include for example:

(1) Preventing unauthorised personnel from entering areas where Dangerous Work is being carried out.

(2) Giving appropriate guidance and signals during operation of Contractor's Equipment to prevent the equipment tipping, overturning or falling.

(3) Giving appropriate guidance and signals to prevent Contractor's Personnel from being struck or pinned by Contractor's Equipment.

(4) Assisting drivers of vehicles including trucks and operators of other Contractor's Equipment in positioning their vehicles particularly when manoeuvring.

(5) Directing operators and drivers to prevent Contractor's Personnel, Contractor's Equipment, Goods in transit, transport and the like from coming into contact with Overhead Services as defined in JSSS Chapter 3 [*Existing Underground, Concealed and Overhead Services*] when working within close proximity and preventing the same from encroaching upon minimum allowable distance from Overhead Services.

(6) Controlling pedestrian and vehicular traffic, Contractor's Personnel and Contractor's Equipment on roads and footpaths on or adjacent to the Site, adjacent to buildings, Operational Areas, places with poor visibility, slopes and vertical drops, places where there is risk of falling or landslide and places where excavation and transporting equipment perform excavation works close to workers.

(7) Monitoring working locations and conditions and preventing any persons from entering areas where Dangerous Work is being carried out or where there is any risk of potential injury and accident.

(8) Any other similar duties and assistance.

2.4.3 Placement

(1) The Contractor shall provide Spotters as appropriate to the Site situation and the work methods employed.

(2) The Contractor shall ensure that the Spotters are informed about the Site conditions and accident prevention.

2.4.4 Safety

The Contractor shall:

(1) Ensure the safety of Spotters when directing vehicles or Contractor's Equipment.

(2) Ensure that Spotters and drivers agree on hand signals before assisting with vehicle manoeuvring.

(3) Instruct Spotters to maintain visual contact at all times with the driver during vehicle manoeuvring.

(4) Instruct drivers to stop manoeuvring immediately if they lose sight of the Spotter.

(5) Not give Spotters additional duties while they are already acting as Spotters.

(6) Instruct Spotters not to use personal mobile phones, personal headphones, or other items which could pose a distraction during spotting activities.

(7) Provide Spotters with high-visibility clothing, especially during night operations.

2.4.5 Signals

(1) To avoid the risk of injury to the Contractor's Personnel when operating Contractor's Equipment, the Contractor shall establish a standardised signal system and appoint a Spotter to give necessary signals to the Contractor's Personnel.

(2) The Contractor shall ensure that all Contractor's Personnel understand and comply with the signals relating to their assigned work task.

(3) The Contractor shall inform and remind all Contractor's Personnel including those designated as Spotters, of the established standardised signal system as follows:

(a) By training all personnel when they first start work at the Site;

(b) By re-confirming with the all personnel in the TBM before the start of work each day; and

(c) By posting signboards on Site where required showing the standardised signals and placing a smaller-sized sticker version directly on the concerned Contractor's Equipment.

2.4.6 Qualification of Personnel

The Contractor shall ensure that all Spotters possess sufficient experience and ability and are adequately trained and supervised to perform their duties.

2.4.7 Communication Tools

The Contractor shall, when necessary, provide and maintain any necessary equipment such as hand-held radios, to ensure effective and safe communications and train all Spotters in their use.

2.4.8 PPE

The Contractor shall ensure that all Spotters are provided with PPE including hats, whistles, high visibility jackets, flags, illuminated batons, etc. to safely and adequately perform their duties.

2.5 FALL PREVENTION

2.5.1 General Items

(1) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for fall prevention complying with the technical requirements specified in OSHA Standard Part 1926, Subpart E "Personal Protective and Life Saving Equipment", ~~and~~ Subpart M ~~–~~"Fall Protection" ~~of "Part 1926 – Safety and Health Regulations for Construction"~~ and as follows:

(a) Requirements relating to fall protection for workers on scaffolds in Subpart L;

(b) Requirements relating to fall protection for workers on cranes and derricks in Subpart CC;

(c) Fall protection requirements for workers performing steel erection work (except for towers and tanks) in Subpart R;

(d) Requirements relating to fall protection for workers on certain types of equipment used in tunnelling operations, underground construction, caissons, cofferdams and compressed air in Subpart S;

(e) Requirements relating to fall protection for workers engaged on the erection of tanks and communication and broadcast towers in Subpart E §1926.105 (Safety Nets);

(f) Requirements relating to fall protection for workers on aerial lifts or poles, towers, or similar structures while engaged in the construction of electric transmission or distribution lines or equipment in Subpart V, Electric Power Transmission and Distribution; and

(g) Requirements relating to fall protection for workers working on stairways and ladders are provided in Subpart X, Stairways and Ladders.

(2) This Section provides fall prevention solutions for a typical range of example circumstances but this is not intended to be restrictive in extent. The Contractor shall provide fall prevention solutions wherever demanded by the nature of the particular part of the Works.

(3) As a general rule, the Contractor shall take Personal ~~fall~~ Fall ~~restraint~~ Restraint ~~system~~ System (PFRS) measures wherever practicable rather than Personal F~~f~~all ~~a~~Arrest ~~s~~System (PFAS) measures.

~~(4) JSSS 2.5 [*Fall Prevention*] shall be read in conjunction with other respective parts of JSSS.~~

コメントの追加 [J40]: Fall prevention に関してだけ、こうした記述をする必要はない。

2.5.2 Height Thresholds

The threshold for fall protection in construction work is 2 m.

The Contractor shall provide fall protection for all personnel, removing all fall hazards whenever any personnel are working 2 m or more above a lower level.

2.5.3 Facilities for Ascending and Descending

When carrying out work at heights of 2 m or more, the Contractor shall provide facilities that enable the Contractor's Personnel to safely ascend and descend from such work levels.

2.5.4 Risk Assessments

(1) Where there is any risk of fall for any part of the Works at the Site, the Contractor shall conduct a pre-assessment of the various types of fall protection systems to be used and the selected alternatives shall be shown in the Safety Plan.

(2) In advance of the commencement of any parts of the Works, the Contractor shall carry out such further risk assessment as necessary, including checking the following and recording the results:

(a) Work areas and the conditions of adjacent areas;

(b) Position, condition and surroundings at each anchorage for separately securing working line, lifeline or nets;

(c) Status of access leading to work areas and any anchorages; and,

(d) The presence or absence of protrusions where there is a risk of cutting or chafing of working line or lifeline or other fall prevention systems and their position and condition.

2.5.5 Handrails

(1) The Contractor shall provide handrails at places where there is risk of fall.

(2) Handrails shall be complete with top-rails, minimum 85 cm high and mid-rails at a height of 35 - 50 cm.

(3) Top-rails shall be designed to withstand 90 kgf. of horizontal force and mid-rails 70 kgf. of horizontal force and sufficient uprights shall be provided to sustain these forces.

(4) Handrails shall be fit for purpose, of rigid and sound condition, securely fixed, without excessive corrosion, deformity or damage of any kind.

(5) If handrails are temporarily removed for example to permit work to be carried out, the Contractor shall provide alternative safety measures including for example:

(a) Displaying appropriate warning signs;

(b) Assigning a Spotter to direct non-essential Contractor's Personnel away;

(c) Providing alternative fall prevention systems to Contractor's Personnel in that area including for example PFRS or PFAS or safety nets;

(d) Prohibiting entry to the working area of any unauthorised Contractor's Personnel; and

(e) Handrails shall be restored immediately after the necessity for removal has ended.

2.5.6 Toeboards

(1) Toeboards shall be provided to bottom of all handrails to prevent risk of Falling Objects.

(2) Toeboards shall be minimum 10cm high from top edge to the level of the ~~working~~ Working ~~platform~~Platform, runway or ramp.

(3) Where material~~,~~ is piled to such height that a 10cm toeboard does not provide protection, panelling from floor to mid-rail, or to top-rail shall be provided.

2.5.7 Preventing Falls from Walkways~~Temporary Access Around the Site~~

(1) Walkways

For the purposes of interpretation:

"Walkways" mean route or passage for safe movement of pedestrians including walkway, bridge type walkway, covered walkways, ramp, ladders and stepladders.

(2) Safe Routes

The Contractor shall provide walkways leading to, within and around the Site and any working areas within the Site.

These shall be designed and constructed to ensure the safe passage of Contractor's Personnel and shall be provided with temporary lighting and effectively maintained at all times.

The Contractor shall display signs clearly indicating the location, intended use and any restrictions and extent with directions so that the Contractor's Personnel can adhere to the routes.

Other construction activities will be prevented from obstructing these routes.

(3) Handrails

At any point where there may be a risk of Contractor's Personnel falling from temporary walkways, the Contractor shall provide handrails as specified in JSSS 2.5.5 [*Handrails*].

Alternatively, the Contractor shall provide fall prevention equipment with the same or better functionality.

2.5.8 Preventing Falls by Providing Temporary Working Platforms

(1) The Contractor shall provide a temporary ~~working~~ Working ~~platform~~ Platform where Contractor's Personnel are carrying out any operation at a height 2 m or more above the base and where there is any risk that Contractor's Personnel may fall.

(2) Temporary Working Platforms shall be constructed from steel tubular scaffolding, system scaffolding or other safe and secure types.

(3) Temporary ~~working~~ Working ~~platforms~~ Platforms shall always have handrails.

(4) If handrails are temporarily removed for construction purposes, the Contractor shall take the measures described in JSSS 2.5.5 [*Handrails*]

2.5.9 Preventing Falls from the Ends and Openings of Working Platforms

(1) The Contractor shall take measures to prevent any falls from ends, edges and around any openings in W~~w~~orking ~~platforms~~Platforms.

(2) The Contractor shall provide handrails to all ends, edges and openings.

(3) Alternatively, the Contractor may place covers over any openings, each of sound construction and designed with a bearing capacity of at least twice any likely superimposed load, including any materials, Plant or Contractor's Personnel.

(4) If for any reason it is not possible to provide handrails around working areas, or to provide covers or when covers are temporarily removed for construction purposes, the Contractor shall take the measures described in JSSS 2.5.5 [*Handrails*].

2.5.10 Measures for Preventing Falls during Excavation Work

The Contractor shall take all necessary measures to prevent falls during excavation work including for example:

(1) Providing fall prevention systems including temporary handrails or barriers, PFRS, PFAS or rope access.

(2) Taking appropriate measures to ensure that earth slopes do not collapse due to the fixing of any fall prevention system or to any contact of the ropes with the slope surfaces.

(3) Providing safe measures to allow Contractor's Personnel to escape from or move around any excavated slope. If it is not possible to take such measures due to the nature of the work, the Contractor shall install main ropes and have Contractor's Personnel use PFRS or PFAS. In such case, the main ropes shall be anchored securely to prevent them becoming loose or detached.

(4) Installing handrails where the slope shoulder is used as a walkway or passageway.

(5) Installing safe crossings over trench excavations at a maximum of 30m intervals and prohibiting all Contractor's Personnel from crossing on the shoring system.

(6) Providing safe means of access and egress using stairways, ladders, ramps and the like to all excavations such as trench, basement, footing excavations, which are 1.2 m or more in depth, generally requiring no more than 7.5m of lateral travel for Contractor's Personnel.

(7) Prohibiting all Contractor's Personnel from crossing on struts of Earthwork-Support.

2.5.11 Measures for Preventing Falls during Rope Access Work

(1) The Contractor shall take all necessary measures to prevent falls during rope access work including for example:

(a) Installing a lifeline to which the PFAS is attached in addition to the working line to which the PFRS is attached; and

(b) Ensuring that the working line, lifeline and harness have sufficient strength and that they have not suffered any damage, abrasion, deformation or corrosion and that the Contractor's Personnel are trained in the use and that they use them properly.

(2) In relation with the working line, lifeline and harness, the Contractor shall ensure that:

(a) The working line and lifeline are securely anchored to independent rigid supports vertically above the work location and cannot be detached;

(b) The working line and lifeline are of sufficient length to allow the Contractor's Personnel to move up and down safely;

(c) Measures have been taken to prevent cutting or chafing, such as providing covers, where there is a risk that the working line or lifeline may be cut or chafed due to protrusions;

(d) That the working line is anchored to two or more independent strong supports; and

(e) The positioning device shall be securely connected to the working line with connectors and the connecting devices shall be compatible with the working line used.

(3) The Contractor shall provide the following particular information in the Safety Plan and shall ensure that all Contractor's Personnel engaged in rope work are fully qualified and informed when doing so, including advising them of:

(a) Location of each anchorage used to secure the working line and lifeline;

(b) Types and strengths of the working line and lifeline to be used;

(c) Lengths of the working line and lifeline to be used;

(d) Protrusions where the ropes may be cut or chaffed and measures to prevent this; and

(e) Measures to prevent Contractor's Personnel engaged in securing the working line and lifeline to the anchorages from falling.

(4) The Contractor shall also provide measures to prevent the risk of accident to any personnel from Falling Objects; by using covered walkways and PPE.

(5) The Contractor shall appoint an Operation Leader who shall work with the rope work team at all times throughout their assignment and direct the work based on the Safety Plan and perform the following duties:

(a) Inform all Contractor's Personnel engaged in rope work of the content of the Method Statement and Safety Plan before commencement of the work;

(b) Check all equipment to be used on the day prior to commencement of the work, and repair, maintain or replace any equipment immediately if any defect is identified;

(c) Permit the Contractor's Personnel to commence work only after the measures have been taken to provide all working lines, lifelines, PFRS, PFAS and PPE; and

(d) Ensure Contractor's Personnel use PFRS, PFAS correctly, and, have them fix the PFAS to the life lines.

2.5.12 Further Measures for Contractor's Personnel

The Contractor shall take all necessary further measures to prevent falls during the Works including, for example, taking the following measures before any work commences:

(1) Conduct safety induction and education courses regarding fall risks for all Contractor's Personnel who shall work on locations and operations where there is a risk of falling.

(2) Prohibit the unauthorised removal of any fall prevention equipment and educate Contractor's Personnel on the dangers of this action.

(3) Educate Contractor's Personnel on the proper storage and management of all safety equipment, including for example PFRS, PFAS and PPE.

(4) Stop the work if there is a risk of bad weather such as strong wind, heavy rain, or snow.

2.5.13 PPE for Fall Prevention

The Contractor shall comply with the following requirements when Contractor's Personnel are subject to fall risks:

(1) The Contractor shall provide PFRS as follows:

(a) PFRS shall be the same as PFAS specified below but designed to restrict the movement of workers and prevent them from reaching the edge of or any openings in the working area and therefore eliminating the risk of a fall; and

(b) ~~PPE for~~ PFRS shall comprise of either a Safety Belt or Safety Harness, together with an anchorage, connectors and other necessary equipment, typically including a lanyard, lifeline and other devices.

(2) The Contractor shall provide PFAS as follows:

(a) The PFAS shall be the full harness type and shall comprise of a body harness, connectors, lanyard, deceleration device, lifeline, anchorage, or suitable combination of these;

(b) The use of a Safety Belt for PFAS is prohibited except where there is any risk of the Contractor's Personnel hitting the lower surface when the full harness type is used and the total fall clearance distance calculated as below, is less than the distance between the point at which a worker would be anchored and any lower level;

The total fall clearance distance for PFAS with a shock-absorbing lanyard is calculated as the total of free fall distance, deceleration distance, D-ring shift, back D-ring height, and safety factor. (Refer to OSHA Technical Manual General Information, Section V: Chapter 4 Fall Protection in Construction, III. Measurements for Assessing Fall Hazards and Controls, A. Total Fall Clearance Distance for PFAS.)

(c) PFAS shall withstand the total force exerted on the system by the Contractor's Personnel falling, including the weight of the system itself; and

(d) For shock absorbers, an appropriate specification and type shall be selected according to the free fall distance calculated from the Contractor's Personnel's

working position (height of anchor point, length of lanyard, etc.).

(3) The PFRS and PFAS shall bear the name of the manufacturer and the date of manufacture and shall be easily visible.

(4) Inspection of any safety equipment

Before starting work using PFRS or PFAS, the systems and anchorages to which the systems are to be attached shall be inspected and defective, damaged, worn-out or missing parts or components shall be replaced.

2.5.14 Portable Ladders and Stepladders

For further requirements, refer to JSSS 6.4 [*Walkways, Ladders and Stepladders*]

2.5.15 Work on Roofs and Other Areas

(1) Where Contractor's Personnel are carrying out work on roof at a height of 2 m or more, PFRS or PFAS shall be used with secure and safe anchorages.

(2) The Contractor shall, ensure that PFRS or PFAS are inspected before each use and declared safe for use with no defective, damaged, worn-out or missing parts or components.

(3) Prevention of Fall Risks on Floors, Fragile Roofs and Other Surfaces

When working on, accessing or crossing, floor or roof areas (including uncompleted areas under construction), or fragile roofs such as those covered with slates, tiles or other non-loadbearing coverings or where there is any risk of breaking and/or falling through such areas, the Contractor shall provide continuous bearing boards for workers to walk on, with a minimum width of 60 cm or sufficiently wider to provide safe transit and where necessary to spread the bearing load on the surface and avoid penetration. The boards shall be fixed together and secured to the underlying surface by tying with ropes or clips to prevent any movement.

Unless otherwise approved by the HSO, handrails shall be provided to one or both sides.

If the underlying surface or roofing is too fragile for such measures and access is required, the Contractor shall provide an independent scaffolding boarded walkway with handrails both sides, which does not bear upon the existing roof but that is supported independently by a ~~scaffolding~~ Scaffolding structure.

(4) Demolition or Alteration of Buildings and Structures

When carrying out demolition or alteration of buildings or structures and where there is a risk of Contractor's Personnel falling, the Contractor shall take the following measures:

(a) Appoint an Operation Leader to be engaged on the work;

(b) Safely supervise the work; and

(c) Inform and train Contractor's Personnel engaged in the said work so that they are aware in advance of the work methods and procedures.

2.5.16 Safety Nets

(1) The Contractor shall provide safety nets when workplaces are more than 7.50m above the lower ground level or water surface level and where the use of another type of fall prevention system is impractical or has been removed.

(2) Operations shall not be undertaken until the net is in place and has been inspected and tested.

(3) Nets shall extend 2.5m beyond the edge of the work surface where Contractor's Personnel may be at risk and shall be installed as close under the working surface as practical but in no case more than 7.50m below such work surface.

(4) Nets shall be hung with sufficient clearance to prevent user's contact with the surfaces or structures below. Such clearances shall be determined by impact load testing.

(5) The mesh size of nets shall not exceed 15 cm by 15 cm. All new nets shall bear a label of proof test from the manufacturer that they can withstand 23,700 Nm minimum impact resistance. Edge ropes shall provide a minimum breaking strength of 2,270kgf.

(6) Forged steel safety hooks or shackles shall be used to fasten the net to its supports.

2.6 FALLING OBJECTS

2.6.1 General

The Contractor shall take all necessary measures to avoid danger and prevent damage and injury to Contractor's Personnel, Employer's Personnel and any other persons including third parties that are on or adjacent to or in the vicinity of the Site whether connected with the Works or otherwise, and who may be at risk from Falling Objects.

In general, this shall be accomplished by:

(1) Providing secure temporary barriers to prevent or capture Falling Objects, designed by the Contractor to be of sufficient strength to capture all Falling Objects without perforating and where necessary shall be of an aesthetic design to be approved by the Engineer.

(2) Providing a safe means of raising and lowering Goods, tools, waste and debris.

(3) Providing an exclusion zone with temporary barriers and all other necessary measures to prevent persons and traffic from entering areas where Falling Objects could be a risk, including providing pedestrian and traffic diversions.

Exclusion zone shall also be provided where protective mesh sheets or toeboard are not installed or where they are temporarily removed due to the nature of the work.

(4) Using PPE.

(5) Providing coloured warning tape, barriers and signage warning of "DANGER FALLING OBJECTS" in addition to all other preventive measures.

2.6.2 General Preventive Measures

(1) All horizontal boarded areas of Sscaffolding shall be provided with substantial and continuous toeboards to all edges in accordance with JSSS 2.5.6 [*Toeboards*].

(2) Mesh sheet (debris net) shall be provided under and around all edges to cover all openings of ~~scaffolding~~ Scaffolding horizontal boarded areas.

(3) Continuous and secure debris nets shall be provided to vertical sides of all ~~scaffolding~~ Scaffolding or openings of external walls where there is no scaffolding.

(4) Safe walkways with secure roof and walls shall be provided over entrances and exits.

(5) Protective canopies, safety fans or projecting shelves shall be provided to the edge of all roofs and to all vertical faces wherever there is a risk particularly over entrance and exits, working areas, walkways and roads, including those on areas beyond the Site boundary.

(6) Protective roofs shall be provided wherever there is a risk over working areas, walkways, footpaths and roads.

(7) All protective structures including roofs, canopies, safety fans, projecting shelves over walkways shall be fit for the purpose intended and provide a secure protective barrier capable of supporting Falling Objects and of sufficient size and dimensions to give full coverage and protection.

(8) Personnel must be prevented from entering any areas below ~~scaffolding~~ Scaffolding where there is a risk of Falling Objects through the provision of barriers and signage.

(9) If any protection is temporarily removed then a Spotter shall be assigned to prevent personnel entering the hazard area.

(10) A Spotter shall also be assigned to direct traffic and pedestrians where diversions are necessary.

(11) Use and control of mesh sheets to prevent objects from falling shall be as follows;

(a) Sheet shall have a mesh size of 12 mm or less or a mesh size corresponding to the size of expected Falling Objects;

(b) Sheet shall comply with BS 7955, composed of polyester material, reinforced as necessary to withstand the impact load of Falling Objects;

(c) Sheets that are damaged or which contain any irregularity shall not be used;

(d) If sheet is removed temporarily to suit the work operation, measures must be applied to avoid any risk of accident whilst it is removed and it must be restored immediately after the work operation is completed;

(e) Mesh sheets shall be inspected at least once a week and replaced immediately if any damage is found; and

(f) If there are any Falling Objects on the mesh sheet, these shall be removed before any work starts. The occurrence shall be reported to and investigated by the HSO to prevent any reoccurrence.

(12) When the work place is close to public or private areas, roads, footpaths, buildings or houses and the like along or outside the Site boundary and where there is any risk that Falling Objects could endanger the safety of traffic and third parties in such areas, and in addition to the above preventive measures, the Contractor shall take all responsibility, make all necessary arrangements with such third parties and/or all relevant authorities, insure, serve all notices, pay all charges and provide all necessary protective facilities and services including:

(a) Provision of mesh screens, safety fans, projecting shelves, temporary roofs over walkways or the like to protect such public or private areas, roads, footpaths, buildings or houses and all property, traffic, pedestrians and other persons thereon; and

(b) Safe and efficient diversion of all traffic and persons (in addition to the above or if the above measures cannot be taken) by providing all temporary barriers, signals, lighting and signs and placing a Spotter to direct traffic and pedestrians.

2.6.3 Falling Tools and Equipment

(1) The Contractor shall take appropriate measures to avoid the risk of injury or damage arising from dropped or falling tools including for example the following:

(a) Securing tools and materials;

(b) Use tool holsters, pouches, lanyards, etc.;

(c) Use debris nets, catch platforms or canopies to catch or deflect falling tools; and

(d) Use tethered tools, either with built-in connection points placed by the manufacturer or retrofitted connection points and connect tools to a lanyard. Tools can either be connected to a worker through a tool belt, harness or wristband, or anchored to a fixed structure.

2.6.4 Preventive Measures against Windblown Dust and ~~Windblown~~ Debris

(1) For work where there is a risk of ejected or windblown dust and debris, (for example from stone crushing, concrete batching, cutting and grinding operations and the like), the Contractor shall:

(a) Enclose areas where such operations are taking place and provide protective screens or covers on storage areas;

(b) Maintain equipment and tools in good condition~~Comply with the provisions of JSSS 4.2.2 [*Defects and Repair During Operation*] for small tools including equipment condition~~, use ~~of~~ covers and safety guards and procedures for

preventing danger due to tool breakage etc.; and

(c) Ensure that workers use appropriate PPE such as head, face and eye protection to prevent accident or injury.

(2) In strong winds and storms, the Contractor shall take measures to prevent wind-borne materials, etc. according to JSSS 2.7.3 [*Measures for Strong Wind and Storms]*.

2.6.5 Preventive Measures against Dropping Objects

(1) The Contractor shall prohibit Contractor's Personnel from throwing or dropping objects (e.g. Scaffolding clips), generally and in no event from heights of 3m or above.

(2) The Contractor shall use a crane to bring objects down from heights of 3m or above. Alternatively, the Contractor may provide enclosed chutes to bring down objects and in addition, shall prohibit entry to the chute area or assign a Spotter.

(3) Chutes shall be designed to prevent objects being scattered over the surrounding area.

2.6.6 Prevention of Accumulation of Goods at Height

(1) The Contractor shall prohibit the accumulation and storage of Goods at high levels particularly on ~~scaffolding~~ Scaffolding and in locations where such Goods are at any risk of falling due to the effect of wind, vibration, water or gradient.

(2) Goods shall generally not be stored or allowed to accumulate within 1m of platform or work floor edges and openings or the like.

(3) When temporarily stored at height, Goods shall be restrained by ropes or sheets to prevent them from falling or slipping.

(4) Goods that are likely to scatter or spread, shall be suitably constrained by tying, boxing or bagging.

2.6.7 Working Above or Below Others

(1) As a general and prevailing rule, the Contractor shall prohibit his workers from working concurrently above or below other workers. To achieve this the Contractor shall carefully coordinate the work location, content, timing of the work operations between his assigned workers.

(2) In exceptional circumstances where this is unavoidable due to the nature of the work, the Contractor shall increase the supervision and the safety procedures described in this Section to ensure that the risk from Falling Objects is avoided. Workers shall be given further training, provided with PPE and additional working equipment (e.g. slings for tools, safety nets and/or hanging bags) in order to provide additional protection and a Spotter shall be assigned while such overhead operations are being carried out.

2.6.8 Loose Rock, Boulders and the Like

(1) If loose rock, boulders, trees and the like, are positioned above working areas and where there is any risk that these may pose a danger to Contractor's Personnel or Contractor's Equipment working below, unless otherwise instructed by the Engineer, the Contractor shall carefully remove such items and if necessary:

(a) Propose further safety measures to the Engineer;

(b) Consult with the Engineer and, if appropriate, obtain the Engineer's Instructions for the required further measures to be taken, such as installation of temporary protective barriers; and

(c) Prohibiting Contractor's Personnel from entering the working areas until the above items have been removed or the further measures have been taken.

2.7 ADVERSE WEATHER REQUIREMENTS

2.7.1 Preventive Measures

(1) Whenever adverse climatic conditions render it ~~too~~ dangerous to continue, the Contractor shall stop affected work at the Site, take preventive measures to ensure the safety of all Contractor's Personnel engaged on that work and inform the Engineer accordingly.

(2) Before, during or after adverse climatic conditions, the Contractor shall:

(a) Stop work at heights if there is any danger of falling;

(b) Stop work if there is a possibility ~~of~~ that such work may be dangerous due to possibility of electrical shock, slippery conditions or poor visibility and the like during rain, snow or fog, and inform the Engineer accordingly;

(c) Inspect the Works and all Goods intended to be incorporated in the Works or used thereon (including any temporary structures) for damage and risk of causing any danger before resuming work. If any damage or risk is found, the Contractor shall immediately take necessary action to prohibit entry in accordance with JSSS 2.3 [*Prohibition of Entry – Dangerous Work*], inform the Engineer accordingly and , if appropriate, request his instructions; and

(d) Inspect Goods for damage and risk of any danger before resuming work. If any damage and risk is found, use Contractor's Equipment and Temporary Works only after making the necessary repairs or replacement.

2.7.2 Measures for Heavy Rain

When~~For~~ heavy rainfall takes place or anticipated at the Site and the surrounding area, the Contractor shall:

(1) Take measures to prohibit entry in accordance with JSSS 2.3 [*Prohibition of Entry – Dangerous Work*] at the following locations:

(a) Places where landslides could be anticipated;

(b) Places where there is a risk of flow of material and equipment and soil runoff; and

(c) Places where there is a risk of damage due to flash floods, lake or river flooding.

~~(2) Take measures such as evacuation of Contractor's Personnel and Goods to a safe place for preventing them from being submerged, washed away or overturning due to loosening of the ground.~~Take measures to prevent the Goods from being submerged, washed away or overturning, for example preparing, wherever possible, stock yard at a safe place, evacuating materials and equipment to a safe place, etc..

~~(3)~~(2) ~~Take measures to protect temporary facilities from damage arising out of flooding or landslide, such as initially constructing them in safe locations, moving them to a safe place, reinforcing the ground and the facilities, diverting or drawing water from behind the facilities to prevent collapse.~~.

2.7.3 Measures for Strong Wind and Storms

For strong wind and storms at the Site and the surrounding area, the Contractor shall:

(1) Take measures to prevent capsize, overturn or movement of Contractor's Equipment particularly tall~~high~~ equipment such as cranes, pile drivers, pile drilling rigs and the like.

Where possible, lower the boom of tall~~high~~ equipment and tie to a secure anchor with steel cable to ensure stability and prevent any risk of overturning.

(2) Always store and/or if necessary evacuate Goods to a sufficient distance away from overhead power and communication lines to prevent damage and injury.

(3) Take the following measures, as necessary, for ~~scaffolding~~ Scaffolding and ~~working~~

Working ~~platforms~~Platforms.

(a) Remove or furl mesh sheets to reduce wind load;

(b) Prevent ~~scaffolding~~ Scaffolding from collapsing or sliding by dismantling scaffolding or adding or reinforcing wall connectors;

(c) Dismantle or reinforce ~~scaffolding~~ Scaffolding projecting from buildings by supporting ropes, cables or additional struts and bracing; and

(d) Securing Goods on ~~scaffolding~~Scaffolding, or lowering them to ground level.

(4) Discontinue work at elevated places.

(5) Take measures to prevent scattering of Goods, waste and debris.

2.7.4 Measures for Heavy Snow and Ice

For heavy snow or ice at the Site and the surrounding area, the Contractor shall:

(1) Take fall prevention measures in snow such as setting of poles or red flags to demarcate roads, footpaths and waterways.

(2) Take fall prevention measures for workers in icy conditions or snow, by ice or snow removal on roads, platforms, stairs, ramps, slopes, passages, ~~scaffolding~~Scaffolding, canopies, safety fans, projecting shelves and the like.

(3) Remove snow from roofs, canopies and signs, notice boards.

(4) Prohibit works on ~~scaffolding~~Scaffolding, ~~working~~ Working ~~platforms~~ Platforms or staging if snow or ice is present except after its careful removal.

2.7.5 Measures for Lightning

Where there is any risk that lightning may affect work on or near tall objects, or near explosives or conductive materials, the Contractor shall take the following safety measures:

(1) The Contractor shall follow the recommendations of OSHA as described in their Fact Sheet [refer to *https://www.osha.gov/Publications/OSHA3863.pdf*] and when thunder is heard, or when information is obtained by lightning detector or radio, the Contractor shall ensure that all Contractor's Personnel engaged on outdoor work, immediately cease work and move to a safe shelter namely a substantial building with electricity or plumbing or an enclosed, metal-topped vehicle with windows closed (but not excavators, cranes, tracked or similar types of Contractor's Equipment).

(2) Contractor's Personnel shall remain in the safe shelter for at least 30 minutes after the last sound of thunder is heard.

2.7.6 Measures for Earthquake and Tsunami

To the extent that time is available and forewarning is given, the Contractor shall evacuate workers to the designated meeting place in the event of earthquakes or tsunamis when the relevant authority issues a warning for the occurrence or prediction of earthquakes or tsunamis.

2.7.7 Inspection of Temporary Works after Adverse Weather and Earthquake

Following the occurrence of any adverse weather or after any earthquake and before re-commencing any work, the Contractor shall:

(1) Perform a visual inspection.

(2) Check all measured values of any instruments to ensure the safety of Temporary Works.

(3) When abnormality is found in instruments, recalibrate or replace them.

(4) If any damage or fault is found in the Temporary Works, immediately carry out repair, replacement and/or reinforcement works, as necessary.

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(5) Keep the Engineer informed of inspection and monitoring results.

2.8 FIRE PREVENTION

2.8.1 Fire Prevention and Firefighting Facilities

Unless otherwise specified in the Particular Safety Specification, the Contractor shall take measures and provide facilities for fire prevention and fire-fighting and shall ensure that such measures are readily available and at all times at the Site and at any offices and accommodation for Contractor's and Employer's Personnel.

(1) Fire Response Plan:

The Contractor shall:

(a) Prepare a Fire Response Plan detailing the proposed fire prevention and fire-fighting measures and facilities and include this as a part of the Safety Plan;

(b) Designate a person (or persons) responsible for fire prevention, fire-fighting and also for evacuation in the event of a fire;

(c) Prepare a firefighting training plan as a part of the fire prevention and fire-fighting plan; and

(d) Carry out all training and keep records of such training in accordance with JSSS 1.19.6 [*Records of Education and Training*].

(2) Fire Response Measures and Facilities:

The Contractor shall:

(a) Provide fire hoses, hose-reels, fire hydrants and similar equipment, and temporary water supply where considered necessary by the HSO;

~~(b) Ensure that an adequate temporary water supply is available as and when required;~~

~~(c)~~(b) Provide fire extinguishers and fire blankets according to the area and purpose of use, such as for ordinary fires, oil fires, electric fires and the like;

Fire extinguishers shall be regularly inspected, refilled, serviced and certified as such by a qualified and independent safety company approved by the Engineer; and

~~(d)~~(c) Prohibit smoking anywhere on the Site other than designated smoking areas, and implement effective fire prevention measures by placing buckets filled with water or sand in smoking and other dangerous areas.

~~(e)~~(d) Train Contractors Personnel and ensure that a team or teams is available to respond in the event of a fire and in advance or in place of attendance by any public firefighting service.

2.8.2 Measures for Evacuation

In the event of a fire, the Contractor shall facilitate evacuation by:

(1) Creating an evacuation route map if necessary and post this in easy-to-see places.

(2) Display the evacuation routes as necessary at all work places.

(3) Install multiple evacuation routes and staircases for buildings with 2 or more floors and a capacity of 30 people or more~~, or in the shafts and for underground work~~.

(4) Establish a communication method to inform the Contractor's Personnel, Employer's Personnel and any other persons that are on the Site so that they are aware of danger and that they must evacuate due to a fire.

コメントの追加 [YM43]: トンネルなどの場合は無理

2.8.3 Management of Flammable and Combustible Materials

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS and unless otherwise approved by the Engineer, the Contractor shall take necessary measures for fire prevention complying with the technical requirements specified in OSHA Subpart F, Fire Protection and Prevention 1926. 152 for the usage and storage of flammable and combustible materials or 1926. 153 Liquefied petroleum gas (LPG) or other relevant OSHA standards for other flammable or combustible materials and gases, including ~~for example~~: gasoline, kerosene, light oil, heavy oil, creosote oil, gear oil, cylinder oil, and other lubricating oils and organic solvents such as acetone, toluene, LPG and other gases including oxygen, acetylene etc. (hereinafter collectively referred to as "flammable and combustible materials" in this Section).

コメントの追加 [岡本44]: 正確に表現してください。OSHA Standard Part 1926, Subpart F , 152"Flammable liquid", 153 "Liquefied petroleum gas (LPG)" or other relevant OSHA standards

In addition, the Contractor shall:

(1) Appoint a person who is appropriately qualified, skilled and experienced in handling flammable and combustible materials, to be responsible for the storage and handling flammable and combustible materials and notify the name of such person to the Engineer.

(2) Store flammable and combustible materials in a purpose-built building or compound, fit for the intended purpose, well ventilated and secure, and protecting the stored materials from direct sunlight and extreme heat.

(3) Take measures to prohibit entry to unauthorised personnel and display signage prohibiting the use of flame.

(4) Determine handling methods of flammable and combustible materials, which shall be notified to the Engineer, and ensure Contractor's Personnel are fully aware of the methods.

(5) Provide fire prevention and firefighting facilities appropriate to the stored flammable and combustible materials.

2.8.4 Fire Prevention Measures for Electric and Gas Welding and ~~Gas~~ Cutting

The Contractor shall refer to and comply with JSSS 6.8 [*Electric and Gas Welding and Cutting*] for the fire prevention requirements for electric and gas welding and cutting works.

2.9 PPE AND FIRST AID

2.9.1 PPE

(1) General

(a) Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the Contractor shall provide all necessary and required PPE free of ~~any~~ charge, to all Contractor's Personnel, ensure that this is used properly, kept in good condition and replaced in the case of being worn-out, lost or damaged;

(b) PPE shall comply with the ~~additional~~ requirements of this Section;

(c) The Contractor shall ensure as a minimum and mandatory requirement, that all Contractor's Personnel are provided with the following PPE and the Contractor shall make sure that all Contractor's Personnel wear or use such PPE as appropriate whenever they are on the Site:

(i) Head Protection; and

(ii) Protective Footwear.

(d) The following additional PPE shall be provided whenever required by the working environment:

(i) Eye and Face Protection;

(ii) Ear Protection;

(iii) Respiratory Protection;

(iv) PPE for PFRS and PFAS (Safety Harnesses, Safety Belts and the like);

(v) Gloves; and

(vi) Body Protection.

(e) The particular requirements for PPE are not repeated in each Section of JSSS but appropriate PPE must always be provided by the Contractor.

~~(e)~~(f) PPE described (4) to (11) are mere examples but not exhaustive, and the Contractor shall provide further PPE at his cost to the Contractor's Personnel when and where any work requires specific PPE.

コメントの追加 **[岡本45]:** Blanket 規定を入れた方が良い。

(2) Additional Inspection, Testing and Maintenance

Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] and unless otherwise required by the manufacturer or approved by the Engineer:

(a) Frequently used PPE shall be inspected, tested and maintained at least once a month; and

(b) Occasionally used PPE shall be inspected before every use and tested and maintained at least once every three months.

The HSO shall also conduct regular checks to ascertain any requirements for the following:

(a) Inventory and reorder supplies;

(b) Follow-up with the manufacturer on maintenance issues; and

(c) Schedule of training and retraining.

(3) PPE Signage Requirements

(a) The Contractor shall display signage at specific places at the Site where the wearing of PPE is mandatory;

(b) Such signage shall include for example:

"Head Protection Must be Worn"

"Eye* Protection Must be Worn"

(* face, ear or other)

(4) Head Protection

Head protection shall protect workers' heads and necks against injury from falling or flying objects, risk of head bumping, hair getting tangled in machinery, chemical drips or splash, climate or temperature, reduce the impact from tripping or falling and protect against electric shocks.

Head protection shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.1: Applicable Standards for Head Protection

	Standard	Title of Standard
1	JIS T8131	Industrial Safety Helmets
2	ANSI Z89.1	Industrial Head Protection
3	BS EN 397	Industrial Safety Helmets

(5) Protective Footwear

Protective footwear shall protect against foot injury due to crushing by superimposed loads, impact injuries from dropped or Falling Objects, foot injuries from treading on sharp penetrating objects, injuries from electric shock and also shall increase adhesion preventing workers' from slipping and falling.

Protective Footwear shall have a variety of sole patterns and materials to help prevent slips in different conditions, including oil or chemical-resistant soles. It can also be anti-static, electrically insulating or thermally insulating, appropriate footwear shall be selected for the risks identified

Protective footwear shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.2: Applicable Standards for Protective Footwear

	Standard	Title of Standard
1	JIS T8101	Protective footwear
2	ASTM F2413	Standard Specification for Performance Requirements for Protective (Safety) Toe Cap Footwear
3	BS EN ISO 20346	Personal protective equipment - Protective footwear
	BS EN ISO 20349	Personal protective equipment. Footwear protecting

		against risks in foundries and welding

(6) Eye and Face Protection

Eye and face protection shall protect workers' eyes and face from harmful materials (for example dust, chemicals, liquid splash, flying objects, molten metal, ~~chemicals,~~ gas and steam, extreme light, flashes and hazardous rays, dirt and debris, etc.)

Eye and face protection can include safety spectacles, goggles, face masks, face shields, visors and the like. Selected protection shall have the right combination of /impact/dust/splash/molten metal eye and face protection for the task and shall be selected for the risks identified.

Eye and face protection shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.3: Applicable Standards for Eye and Face Protection

	Standard	Title of Standard
1	JIS T 8141 JIS T 8142	Personal eye protectors for optical radiations Personal face protectors for welding
2	ANSI Z87.1	American National Standard for Occupational and Educational Personal Eye and Face Protection Devices
3	BS EN 166 BS EN ISO 4007	Personal eye protection. Specifications Personal protective equipment. Eye and face protection. Vocabulary

(7) Ear Protection

Ear protection shall protect workers' hearing against injury from continuous, loud or Intense Noise by providing soundproofing.

The Contractor shall ensure that workers are still able to receive and immediately react to oral instructions and danger warnings when wearing ear protection.

Ear protection shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.4: Applicable Standards for Ear Protection

	Standard	Title of Standard
1	JIS T 8161	Ear protectors
2	ANSI/ASA S12.6	Methods for Measuring the Real-Ear Attenuation of Hearing Protectors
3	BS EN ISO 4869-1 BS EN ISO 4869-2	Acoustics. Hearing protectors. Subjective method for the measurement of sound attenuation Acoustics. Hearing protectors. Estimation of effective A-weighted sound pressure levels

		when hearing protectors are worn
	BS EN ISO 4869-3	Acoustics. Hearing protectors. Measurement of insertion loss of ear-muff type protectors using an acoustic test fixture
	BS EN ISO 4869-4	Acoustics. Hearing protectors. Measurement of effective sound pressure levels for level-dependent sound-restoration ear muffs

(8) Respiratory Protection Equipment (RPE)

RPE shall protect workers' airways, lungs and related bodily systems against damage and injury from Harmful Substances or from oxygen-deficient atmospheres when other controls are either not possible or insufficient on their own.

Selection and use of RPE shall be in accordance with HSE publication HSG53 (Fourth edition, published 2013), (https://www.hse.gov.uk/pubns/priced/hsg53.pdf). RPE must be both adequate and suitable, whereby:

コメントの追加 [J46]: リンク　2.7.5 に同じコメント

(a) Adequate: – Is right for the hazard and reduces exposure to the level required to protect the wearer's health; and

(b) Suitable – Is right for the wearer, task and environment, such that the wearer can work freely and without additional risks due to the RPE.

RPE shall fit properly and filters shall be of the correct type as each filter is effective for only a limited range of substances. Filters have only a limited life and shall be changed regularly to maintain performance.

When replacing parts such as filters, use only manufacturers original parts, ensure that the correct type is selected and fit in accordance with the manufacturer's instructions.

Where there is a shortage of oxygen or any danger of losing consciousness due to exposure to high levels of harmful fumes, the Contractor shall only use breathing apparatus, never a filtering cartridge.

RPE shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.5: Applicable Standards for RPE

	Standard	**Title of Standard**
1	JIS T 8151 JIS T 8157	Particulate respirator Powered air purifying respirator
2	BS EN 149: 2001+A1: 2009 BS EN 14593-1: 2018	Respiratory protective devices. Filtering half masks to protect against particles. Respiratory protective devices. Compressed air line breathing devices with demand valve. Devices with a full-face mask.
3	ANSI Z88.2-2015	Practices for Respiratory Protection

(9) Safety Harnesses and Safety Belts

PPE for PFRS shall prevent the risk of workers falling from a height or sliding down slopes.

PPE for PFAS shall arrest a worker in a fall from a height or sliding down slopes.

For further requirements on PPE for PFRS and PFAS, refer to JSSS 2.5.13 [*PPE for Fall Prevention]*.

PPE for PFRS and PFAS shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.6: Applicable Standards for PPE for PFRS and PFAS

	Standard	Title of Standard
1	JIS T8165	Personal fall-arrest systems
2	ANSI Z359.0 to Z359.16	ANSI/ASSE Z359 Fall Protection and Arrest Standards Package
3	BS EN 361	Personal protective equipment against falls from a height. Full body harnesses

(10) Gloves

Gloves shall protect workers' hands from electric shocks, sparks during welding and fusing work, molten metal, heated metal, etc., and shall reduce the vibrations transmitted to workers' hands by tools, machines, etc.

Gloves shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.7: Applicable Standards for Gloves

	Standard	Title of Standard
1	JIS T 8113 JIS T 8114	Protective Leather Gloves for Welders Vibration isolation gloves
2	ASTM D120 ANSI S2.73	Standard Specification for Rubber Insulating Gloves Mechanical vibration and shock - Hand-arm vibration
3	BS EN 60903 BS EN 12477	Live working. Gloves of insulating material Protective gloves for welders

(11) Body Protection

If the HSO considers necessary, Contractor's Personnel shall be supplied with and shall wear suitable body protection appropriate for the working environment.

Risks such as from chemical or metal splash, spray from pressure leaks or spray guns, contaminated dust, impact or penetration, entanglement of own clothing, hot and extremely cold work; and the like shall be considered and avoided through the provision where necessary of special protective clothing. This may include for example flame-retardant, anti-static, chain mail, chemically impermeable, and high-visibility clothing and the like.

Body Protection shall be selected and provided for the risks to be identified.

Body Protection shall be kept reasonably clean and shall be replaced when worn out or damaged.

2.9.2 First-Aid

(1) General

The Contractor shall ensure that trained personal and adequate first-aid equipment and supplies shall be readily available at the Site. First-aid kits shall be stored at selected locations on the Site where they are most likely to be needed; they must be accessible with the minimum of delay.

(2) Training

A representative number of Contractor's Personnel selected by the HSO shall be trained in first aid (including cardiopulmonary resuscitation) to a minimum standard of that recommended by the International Federation of Red Cross and Red Crescent Societies standard course or equivalent.

(3) First Aid Kits

(a) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for first aid complying with the technical requirements specified in OSHA, 1910 Subpart K Medical and First Aid of Part 1910 - Occupational Safety and Health Standards".

(b) First Aid kits shall comply with ANSI Z308.1 and unless otherwise specified in the Particular Safety Specification, Class A first aid kits shall be provided at the working area(s) on Site and one Class B safety kit shall be provide at the sick bay.

(c) All persons working at the site need to be aware of their purpose and location. Adequate signage shall be provided at the Site to show the location of the first aid kit(s).

(d) Each first-aid kit shall contain the specified items and quantities listed in ANSI Z308 as follows:

(i) Adhesive Bandage;

(ii) Adhesive Tape;

(iii) Antibiotic Application;

(iv) Antiseptic;

(v) Breathing Barrier;

(vi) Burn Dressing (gel soaked);

(vii) Burn Treatment;

(viii) Cold Pack;

(ix) Eye Covering, with means of attachment;

(x) Eye/Skin Wash;

(xi) First Aid Guide;

(xii) Hand Sanitizer;

(xiii) Medical Exam Gloves;

(xiv) Roller Bandage;

(xv) Scissors;

(xvi) Splint;

(xvii) Sterile pad;

(xviii) Tourniquet;

(xix) Trauma pad; and

(xx) Triangular Bandage.

(e) Each first-aid kit shall contain any additional items and quantities that may be necessary according to the requirements and location of the Works.

(f) The Contractor shall ensure that the following additional items are provided with each first aid kit:

(i) A list of emergency phone numbers;

(ii) Flashlight and extra batteries; and

(iii) Bottled drinking water.

(g) To prevent disease transmission when giving first-aid, first-aid kits shall contain PPE such as disposable gloves, CPR breathing barriers, eye protection and like supplies.

(h) ~~Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] and unless otherwise required by the manufacturer or approved by the Engineer, f~~First aid kits shall be inspected ~~tested and maintained~~ at least once a month.

The HSO shall also conduct regular checks to ascertain any requirements for the following:

(i) Inventory and reorder supplies;

(ii) Follow up with the manufacturer on maintenance issues; and

(iii) Schedule of training and retraining.

(4) Automated External Defibrillator – AED

(a) Unless otherwise specified in the Particular Safety Specification, and amongst any other first-aid equipment to be provided by the Contractor, the Contractor shall provide at least one AED at the Site;

(b) The AED shall be stored at a selected location on the Site where it is most likely to be needed and it must be accessible with the minimum of delay;

(c) All personnel at the site shall be kept informed of the purpose and location and the Contractor shall train a sufficient number of personnel in its use;

(d) Adequate signage shall be provided at the Site to show the location of the AED together with instructions for its use;

(e) ~~Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] and unless otherwise required by the manufacturer or approved by the Engineer,~~ The AED~~'s~~ shall be inspected ~~and maintained~~ ~~at~~regularly be inspected in accordance with the manufacturer's instructions ~~least once per month~~ as follows:

(i) Visually inspect looking for dirt, damage, or contamination;

(ii) Inspect electrodes ensuring that they are unexpired and in their original, sealed packages, two sets shall be provided;

(iii) Test primary battery;

コメントの追加 [J47]: 前の版では Further to the requirements of JSSS ***1.35.1*** としていた。但しいずれも PPE であり、First aid kit は含まれていない。(4)(e)も同様。

コメントの追加 [J48]: First aid kit のサプライを規定する 2.9.2(3)(a)でも Engineer は関与しないことになっている。ならばエンジニアの関与はいらない

コメントの追加 [J49]: 上記コメントに同じ

(iv) Make sure a backup battery is stored with the AED and test backup battery; and

(v) Keep the AED charged and check it is maintaining a charge.

The HSO shall also conduct regular checks to ascertain any requirements for the following:

(i) Inventory and reorder supplies;

(ii) Follow up with the manufacturer on maintenance issues; and

(iii) Schedule training and retraining.

(f) The AED shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.7: Applicable Standards for AED

	Standard	Title of Standard
1	BS EN 60601-2-4:2011+A1:2019	Medical electrical equipment, Part 2-4: Particular requirements for the safety of cardiac defibrillators

CHAPTER 3: EXISTING UNDERGROUND, CONCEALED AND OVERHEAD SERVICES

3.1 UNDERGROUND AND CONCEALED SERVICES

3.1.1 General~~ly~~

(1) This Section applies where there are existing underground or concealed pipes, cables, wires, ducts and the like within the Site (hereinafter collectively referred to as "Underground or Concealed Services"), which may require locating, preserving, avoiding and protecting, diverting, removing, relocating or replacing by the Contractor. The Employer shall provide, at the request of the Contractor, such reasonable assistance as to allow the Contractor to carry out such work~~s~~.

(2) If Underground or Concealed Services are the property of a relevant authority and unless otherwise specified in the Particular Safety Specification, the Contractor shall, in accordance with the agreement between the Employer and the owner of Underground or Concealed Services regarding the actual scope of work to be carried out, comply with the official regulations and procedures of the authority.

(3) In the case of Underground or Concealed Services which are the property of a third party, the Contractor shall take the procedure of obtaining permission for the work mentioned in (4) below.

(4) In accordance with the agreement between the Employer and the owner of Underground or Concealed Services regarding the actual scope of work to be carried out, permission for its execution and details of the procedures and requirements (including responsibility for insurance and safety procedures), the Contractor (with reasonable assistance of the Employer~~ and Engineer~~) may consult with the owner of Underground or Concealed Services to obtain permission to execute the work following the preparations described in JSSS 3.1.2 [*Preparation and Work Planning*] as well as the requirements of the Contract and the instruction of the Engineer.

(5) In the case of Underground or Concealed Services which are the property of the Employer, the permission mentioned in (4) above shall be deemed to have been provided by the Employer subject to the preparations described in JSSS 3.1.2 [*Preparation and Work Planning*].

3.1.2 Preparation and Work Planning

(1) Unless otherwise specified in the Particular Safety Specification, the Contractor shall make the following preparations prior to commencing any work for locating, protecting, diverting, removing, replacing or the like of any Underground or Concealed Services:

(a) Prepare a ~~detailed~~ Method Statement describing the measures for carrying out the required work and ensuring the safety of all persons engaged thereon;

(b) Prepare an emergency call list and communication procedure;

(c) Obtain particular information from the Employer or relevant authority on the procedures for emergency disconnection/de-energisation of the Underground or Concealed Services in case of an accident;

コメントの追加 [J50]: 配管等水系のユーティリティを考慮

(d) Provide and use cable avoidance tools or cable locators, trace the position and routes on ground surfaces, walls and floors of all Underground or Concealed Services, mark routes with paint and/or wooden pegs or barriers and clear signage and ensure that no unauthorised work take place within the area;

(e) Conduct careful exploratory hand excavation to locate the exact position, depth and route of the Underground or Concealed Services and proceed to expose and protect same or prepare for the required work; and

(f) The Method Statement shall be revised based on the information obtained from the above locating and exploratory work.

(2) In case Underground or Concealed Services of which existence are predicted at the Site, but not shown in the Contract, the Contractor shall inform the Engineer of the existence for the Engineer's instruction to the Contractor.

(3) Machine excavation shall not be allowed when there is any risk that Underground or Concealed Services may exist in the location or vicinity of the excavation.

(4) The Contractor shall take all measures necessary to ensure the protection and safety of road traffic, pedestrians, Contractor's Personnel and any other persons affected by or potentially affected by the Works as required by the Contract and also by JSSS including JSSS 2.2 [*Risk Control Around the Site*].

3.1.3 Requirements and Precautions

Unless otherwise specified in the Particular Safety Specification, the Contractor shall:

(1) Protect and secure all Underground or Concealed Services throughout the execution of the Works and avoid all damage to such services and adjacent areas, particularly when backfilling, compacting and reinstating surfaces.

(2) Take care not to damage the Underground or Concealed Services when using power tools for example asphalt cutting machine to break through paved surfaces above Underground or Concealed Services.

(3) Take care to safely expose, support and protect any drains, other services (new or existing) which follow or cross the route of Underground or Concealed Services.

(4) Reinstate surface paving with material and methods specified, withoutpaying attention not leavinge any difference in level with surrounding pavement and replace all surface markings and signage.

(5) Adequately test all Underground or Concealed Services after completing any diversion, replacement or alteration work, to ensure the safety and integrity and to avoid any future risk of injury, leakage or pollution.

(6) Implement strict safety and fire prevention measures throughout the work including prohibiting the use of equipment that can create any damage or fire hazard (such as welding, cutting and electrical equipment) in the vicinity of any Underground or Concealed Services conveying flammable, combustible or explosive liquids or gases.

(7) Be aware of and avoid all risk of electric shock when excavating for or near any cables, wires or cable ducts, ensure the safety of all Contractor's Personnel and ensure the provision and use of PPE.

(8) Be aware of and avoid all risk of subsidence or collapse of excavations due to Contractor's Equipment, vehicles, other equipment or other activities being too close to any excavation.

(9) Provide adequate temporary barriers, signage, markings and lighting to all areas where work on or adjacent to Underground or Concealed Services is taking place.

(10) Assign a full time Spotter in accordance with the requirements of JSSS 2.4 [*Spotters, Flagmen and the Like*] when work in progress poses any risk to the Underground or Concealed Services, Contractor's Personnel or the Works.

(11) Provide electrical cable marker tiles over all buried wires, cables and cable ducts to warn and protect against the risk of future mechanical damage to same.

(12) Provide permanent markers or signage at the surface to warn of the presence, route and any danger of any Underground or Concealed Services.

(13) Prepare as-built drawing of Underground or Concealed Services after completion of the associated work showing accurate positions, depth, sizes, routes and details and submit to the Engineer.

3.1.4 Information to Contractor's Personnel

Prior to the start of work to or in the vicinity of Underground or Concealed Services, the Contractor shall instruct relevant Contractor's Personnel of the following:

(1) Location of live cables and equipment.

(2) Risk of electric shock from live cables or equipment.

(3) Separation distances from live cables and equipment.

(4) Work procedure.

(5) Preventive measures against electric shock.

(6) PPE to be used.

(7) Electric shock treatment in accordance with JSSS 3.1.5 [*Electric Shock Treatment*].

(8) Response in the event of an accident in accordance with JSSS 1.24 [*Accident Response Plan*] and JSSS 1.25 [*Measures at the Time Accidents Occur*].

(9) Appropriate procedures in the case of accidents arising from contact with or damage to any other services.

3.1.5 Electrical Shock Treatment

The following measures shall be taken in the event of an electric shock accident.

(1) Prohibit workers from touching the chassis or body of any Contractor's Equipment or materials that have become electrified by any live circuit and keep all Contractor's Personnel well away from such equipment, materials and the working area.

(2) When the unit of Contractor's Equipment which is in contact with or in close proximity to a live circuit does not get an electrical shock, the operator shall immediately move the equipment to an adjacent safe location.

(3) When it is not possible to move the Contractor's Equipment away, the operator shall remain in the cabin until the affected live circuits are de-energised.

(4) Prevent secondary electric shock accident by permitting only those who have received training in electrical rescue to rescue the casualties of an electric shock accident.

(5) Immediately perform primary lifesaving measures such as CPR, if necessary use an Automated External Defibrillator (AED) and call for emergency medical support.

(6) Report to the Engineer in accordance with JSSS 1.25 [*Measures at the Time Accidents Occur*] and where applicable to the representative of the relevant authority.

3.2 OVERHEAD SERVICES

3.2.1 General~~ly~~

(1) This Section applies where there are exposed or overhead power or communication cables, wires, ducts, pipes and the like within the Site (hereinafter collectively referred to as "Overhead Services"), and which may require preserving, protecting, diverting, removing, relocating or replacing by the Contractor. The Employer shall provide, at the request of the Contractor, such reasonable assistance as to allow the Contractor to carry out such work~~s~~.

(2) If Overhead Services are the property of a relevant authority and unless otherwise specified in the Particular Safety Specification, the Contractor shall, ~~-~~in accordance with the agreement between the Employer and the owner of Overhead Services regarding the actual scope of work to be carried out, comply with the official regulations and procedures of the relevant authority.

(3) In the case of the Overhead Services which are the property of a third party, the Contractor shall take the procedure for the works mentioned in (4) below.

(4) In accordance with the agreement between the Employer and the owner of Overhead Services regarding the actual scope of work to be carried out, permission for its execution and details of the procedures and requirements (including responsibility for insurance and safety procedures), the Contractor (with reasonable assistance of the Employer and Engineer) may consult with the owner of Overhead Services to obtain a permission of the owner of Overhead Services to execute the works following the preparations described in JSSS 3.2.2 [*Preparation and Work Planning*] as well as the requirements of the Contract and the instructions of the Engineer.

(5) In the case of Overhead Services which are the property of the Employer, the permission mentioned in (4) above shall be deemed to have been provided by the Employer subject to the preparations described in JSSS 3.2.2 [*Preparation and Work Planning*].

3.2.2 Preparation and Work Planning

(1) Unless otherwise specified in the Particular Safety Specification, the Contractor shall make the following preparations prior to commencing any work for protecting, diverting, removing, replacing or the like of any Overhead Services:

(a) Prepare a detailed Method Statement describing the measures for carrying out the required work and ensuring the safety of all persons engaged thereon;

(b) Prepare an emergency call list and communication procedure; and

(c) Obtain particular information from the Employer or relevant authority on the procedures for emergency de-energisation of the Overhead Services in case of an accident.

3.2.3 Requirements and Precautions

Unless otherwise specified in the Particular Safety Specification, the Contractor shall:

(1) Protect and secure all Overhead Services throughout the execution of the Works.

(2) Adequately test all Overhead Services after completing any diversion, replacement or alteration work, to ensure the safety and integrity and to avoid any future risk of injury, leakage or pollution.

(3) Be aware of and avoid ~~all risk of~~ electric shock when working near any cables or wires, ensure the safety of all Contractor's Personnel and ensure the provision and use of PPE.

(4) Be aware of and avoid ~~all risk of~~ subsidence or collapse of support structures of Overhead Services due to excavations being too close.

(5) Provide adequate temporary barriers, signage, markings and lighting to all areas where work on or adjacent to Overhead Services is taking place.

(6) Provide insulating protective pipe or casings to the Overhead Services.

(7) Create safe zones free from danger arising from the use of Contractor's Equipment by demarcating the route and turning ranges and providing adequate signage and barriers.

(8) Prevent Contractor's Equipment, wire ropes or chains from entering the safe zones and limit the moving range of crane jibs and other high equipment.

(9) Assign a full time Spotter in accordance with the requirements of JSSS 2.4 [*Spotters, Flagmen and the Like*] when work in progress poses any risk of close proximity or contact with Overhead Services, Contractor's Personnel or the Works.

(10) Maintain a safe separation distance between any charged electrical circuit and Contractor's Personnel, Contractor's Equipment, Scaffolding and any other Temporary Works, wire rope, tools and materials. The separation distance shall be the maximum relevant value shown in the following Table 3.2.1, any values that may be prescribed by the Laws ~~and regulations~~ of the Country or any values that may be prescribed by the regulations of the relevant authority:

Table 3.2.1: Safe Separation Distances

	Circuit Voltage	Separation Distance
1	Extra-high Voltage (7000V and above)	2m (20cm to be added for every 10,000V increase and fraction from 60,000V)
2	High Voltage (600V up to 7000V)	1.2m
3	Low Voltage (Less than 600V)	1m

3.2.4 Information to Contractor's Personnel

Prior to the start of work to or in the vicinity of Overhead Services, the Contractor shall instruct relevant Contractor's Personnel of the same items as listed in JSSS 3.1.4 [*Information to Contractor's Personnel*]

3.2.5 Electrical Shock Treatment

The Contractor shall take the measures prescribed in JSSS 3.1.5 [*Electrical Shock Treatment*].

CHAPTER 4: CONTRACTOR'S EQUIPMENT

4.1 GENERAL REQUIREMENTS

4.1.1 Scope

(1) This Chapter specifies the safety requirements for Contractor's Equipment which shall include mobile equipment, static equipment, small equipment, tools and electric power equipment as further described in the following paragraphs.

(2) The Contractor shall ensure the safety of all Contractor's Personnel, Employer's Personnel and any other persons that are on the Site, adjacent to the Site and other places where they may be affected by Contractor's Equipment in operation, standby or storage or when such equipment is being maintained or transported.

(3) For additional requirements for hoisting, rigging and cranes, refer to JSSS 5 [*Hoisting and Rigging*].

(4) Any reference to "operator" in this Chapter and elsewhere in JSSS shall be deemed to include "driver" also.

(5) Mobile equipment including wheeled or tracked, self-propelled construction machinery such as:

(a) Surface excavation and spoil movement equipment for bulk excavation, grading and levelling, such as bulldozers, graders and tractor excavators;

(b) Excavators such as backhoes, face shovels, power shovels;

(c) Loaders such as payloaders and face shovels;

(d) Dump trucks for removal or importation of spoil;

(e) Specialist foundation equipment such as pile driving and boring equipment;

(f) Compaction and surface treatment equipment such as smooth or sheepsfoot rollers, pneumatic and vibration rollers, asphalt finishers;

(g) Mobile cranes;

(h) Piling equipment;

(i) Concreting equipment such as ready-mixed concrete trucks and pump trucks;

(j) Demolition equipment such as breakers, concrete crushers and demolition grippers;

(k) Transportation Equipment, such as cars and buses for Contractor's Personnel and trucks and trailers for transporting Goods to, around and from the Site; and

(l) Workboat for diving works.

(6) Static equipment includes powered stationary equipment such as:

(a) Stone crushing plants and screening equipment;

(b) Concrete and asphalt concrete batching plants;

(c) Tower cranes, derrick cranes;

(d) Elevators;

(e) Material conveyors;

(f) Air compressors;

(g) Engine Generators, submersible pumps and engine pumps; and

(h) Reinforcement, cutting and bending machines.

(7) Small equipment and tools such as:

(a) Hand steered vibrating rollers;

(b) Plate compactors and vibratory rammers;

(c) Portable c~~C~~onveyors;

(d) Pipe bending machines;

(e) Drills, hammers, breakers, compactors and compressors;

(f) Wood processing equipment;

(g) Independent concrete mixers;

(h) Air extract or blowing equipment for improving the working area environment;

(i) Jack hammers, drills;

(j) Chain saws;

(k) Hand operated equipment such as jacks, winches, lever hoists; and

(l) Hand tools such as wrenches, chisels, hand saw, picks, hammers.

4.1.2 Compliance Standards

(1) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], the Contractor shall comply with the requirements of this Chapter, read jointly with and including the further technical requirements of the Provision and Use of Work Equipment Regulations 1998 (PUWER), HSE Guidance in UK.

(2) In accordance with these regulations, together with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the Contractor shall ensure that all Contractor's Equipment provided for use upon the Works is:

(a) Suitable and fit for the purpose for which it is intended;

(b) Safe for use, maintained in a safe condition and inspected to ensure it is correctly installed and used and does not subsequently deteriorate;

(c) Used only by people who have received adequate information, instruction and training;

(d) Accompanied by suitable health and safety measures, such as protective devices and controls. These shall include emergency stop devices, adequate means of isolation from sources of energy, clearly visible markings and warning devices; and

(e) Used for the designed and intended purpose.

4.1.3 Manufacturer's Documentation

The Contractor shall obtain a copy of the following official Manufacturer's documentation for all units of Contractor's Equipment:

(1) Safety instructions and recommendations.

(2) Operation, maintenance and repair manual.

The Contractor shall inform all relevant Contractor's Personnel of the content of the same, provide further safety training as necessary and ensure full compliance by all relevant Contractor's Personnel with such instructions and recommendations to assist in enforcing the safe use of Contractor's Equipment.

4.1.4 Instruction for Contractor's Personnel

Further to the requirements of JSSS 1.7 [*Contractor's Safety Plans*], JSSS 1.9 [*Contractor's*

Method Statements] and JSSS 1.15 [*Contractor's Safety Management Activities*], the Contractor shall include details of the following in the Method Statement and Safety Plan for the ~~w~~Works involving the use of Contractor's Equipment and shall fully inform all relevant Contractor's Personnel, associated therewith of all requirements before the commencement of any such operations, such as ~~including~~:

(1) Scope of work, locations and areas, work methods, dimensions, levels and quantities to be achieved.

(2) Types, capacities and numbers of units.

(3) Workplaces, area limits and operational routes, restricted areas, locations of caution signs and fences.

(4) Preservation of safe access, walkways and footpaths around the working areas and transportation areas.

(5) Identities and roles of and location(s) for Spotters and the communication and signalling requirements, including equipment to be used.

(6) ~~Environmental impact including required Hazardous w~~Working conditions and required mitigation measures for workers and any other persons against vibration, noise, dust and the like.

(7) Safety measures ~~for the environmental conditions~~ in the working area, any nearby areas for storage of Dangerous Goods or Hazardous Substances, Hazardous Areas, O~~o~~perational ~~areas~~ Areas or areas where Dangerous Work is taking place.

(8) Potential danger to any persons who may be affected by the use of Contractor's Equipment and the required measures to avoid any accident or injury.

(9) Any potential hazards in the use of Contractor's Equipment including those which may create a risk of falling or overturning.

(10) Restrictions to the movement and operation of Contractor's Equipment such as existing structures, foundations, surfaces, underground or overhead services and ~~dangerous~~ Dangerous ~~goods~~ Goods storage.

(11) Measures to be taken in case of breakdown, defect or fault in Contractor's Equipment including location of areas for inspection and maintenance.

(12) Name of the authorised operator for each unit of Contractor's Equipment when authorised operator is necessary to be assigned.

(13) ~~The n~~Name and contact of the HSO to inform when there are any requirements for inspection, maintenance and repair of Contractor's Equipment.

4.1.5 Safety Training

(1) The Contractor shall provide the relevant Contractor's Personnel with health and safety training in accordance with JSSS 1.19 [*Safety Training Generally*] taking account of the characteristics of the particular types of Contractor's Equipment and including:

(a) Functions, performance, operation methods, inspection items, inspection method of safety and emergency alarm devices;

(b) Operation~~Work~~ procedure, signal and communication method at starting time of the operation, and daily inspection;

(c) Lockout and tagout procedures for shutting down operation, turning off the power, locking the starter and necessary measures for the time of cleaning and inspection of the Contractor's Equipment;

(d) Stop of the operation of the Contractor's Equipment when an abnormality occurs and report to the person in charge;

(e) Prohibition of removal or isolation of safety devices; and

(f) Risks during operation of the Contractor's Equipment.

(2) Particular safety training for transportation equipment operators shall be for the purpose of preventing of traffic accidents on and off the Site and shall include:

(a) Driving rules in general;

(b) Compliance with speed limits, signs, alcohol use, drugs and all other requirements the Laws of the Country;

(c) Driving methods to avoid contact and collision with other persons, cycles, motorcycles and other vehicles;

(d) Driving methods to properly overtake other vehicles and to be undertaken by others;

(e) Driving methods when encountering holes, bumps or obstacles on the road;

(f) Required inspection and maintenance before starting operation; and

(g) Proper use of vehicles including behaviour and control of passengers, prevention of overcrowding, overloading and unauthorised passengers.

4.1.6 Requirements for Operators

Further to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*], the Contractor shall ensure that operators are appropriately qualified, skilled and experienced in operation of the Contractor's Equipment to which they are assigned and duly certified as such by the HSO.

(1) Operators shall safely and competently operate the Contractor's Equipment.

(2) Operators shall be fully aware of the following:

(a) Work procedures, hazards and operation methods;

(b) The need to stop the operation when any defect or abnormality is detected;

(c) The identity of and location(s) for Spotters and the communication and signalling requirements including equipment to be used; and

(d) The procedures in case of emergency.

(3) Operators shall:

(a) Keep all safety devices including emergency alarm and stop devices activated;

(b) Keep their assigned unit clean and carry out regular inspections prescribed by the Contractor before start of operation; and

(c) Inform ~~Ensure that~~ the Contractor's maintenance personnel ~~are made aware~~ of any apparent defect or maintenance requirements ~~and that such personnel have performed any required repair or maintenance before the start of operation~~.

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4.1.7 Signalling

(1) Signalling between operators and any associated workers shall only be carried out by designated personnel.

(2) Spotters shall be located in a safe place and where they can clearly see and be seen by the operator.

(3) When it is not possible for Spotters to give direct visible and audible signals to the operator, other systems including hand-held radios or videophone must be provided and used.

4.2 INSPECTION, MAINTENANCE AND REPAIR

4.2.1 Requirements Generally

(1) Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the HSO shall ensure that all Contractor's Equipment is inspected, fully maintained and operational when it is mobilised to the Site. Thereafter all Contractor's Equipment shall be inspected, maintained and repaired before the commencement of the first and of all subsequent days of operation.

(2) Inspections shall include all items necessary to ensure the safe performance of the Contractor's Equipment including the following examples and any further requirements due to the characteristics, capability and condition of the Contractor's Equipment and in compliance with the manufacturer's official operation, maintenance and repair manual.

(3) When mobilising Contractor's Equipment to the Site and before commencement of operation, the Contractor shall:

(a) Inspect all units of Contractor's Equipment to ensure that:

(i) all components are installed and functioning; and

(ii) adequate covers and safety guards (to prevent contact with moving parts) are provided and securely fixed.

(b) Ensure as a minimum that the daily and periodical check items have already been inspected and recorded;

(c) Ensure that all inspection and maintenance records are available for inspection by the Engineer if and when required in compliance with JSSS; and

(d) If any inspection and maintenance records are incomplete or not available, the Contractor shall carry out inspections and maintenance to ensure that a full and acceptable record is available for all units of Contractor's Equipment.

In relation with the above, it should be noted that Contractor's Equipment shall be in a working and safe condition and fully compliant with JSSS~~the Contract~~ when it is mobilised to the Site. The Engineer may refuse to accept delivery to the Site any Contractor's Equipment which does not meet the requirements stipulated in ~~the Contract~~JSSS.

(4) The Contractor shall undertake the following daily inspection items, (or at intervals required by the manufacturer's official operation, maintenance and repair manual), carry out any necessary maintenance and repair, and when necessary obtain re-certification of the HSO before any further operation of the Contractor's Equipment is permitted:

(a) Operating condition of engine, gearbox(s), drive shafts, pulleys and main components, emergency stop and safety devices, any defects or abnormalities in covers, doors and enclosures;

(b) Abnormal sounds, vibrations or smell;

(c) Leaks, levels and condition of lubricants, coolant, hydraulic fluid levels, and the like;

(d) Lights and indicators;

(e) Brakes, clutches, steering and operating devices and working devices;

(f) Cables, slings, ropes and chains;

(g) Protective covers are adequately provided over all rotating or moving parts;

(h) Attachments and tools such as buckets, grabs and the like;

(i) Cleanliness of each unit or item of Contractor's Equipment;

(j) Cleanliness of each working area and removal of obstructions;

(k) Availability of emergency kits such as warning flares and triangles, fire extinguisher, first aid kit and the like, as required by the Laws of the Country with the testing and expiration date clearly indicated; and

(l) Any additional inspection items stipulated in the manufacturer's official operation, maintenance and repair manual.

(5) The Contractor shall undertake the following periodic inspection items, (at intervals required by the manufacturer's official operation, maintenance and repair manual), carry out any necessary maintenance and repair, and when necessary obtain re-certification of the HSO before any further operation of the Contractor's Equipment is permitted:

(a) Engine compression pressure, valve clearance and other relevant parts of prime energy unit;

(b) Gearbox, clutch, transmission, propeller shaft, differential and other parts of power transmission devices;

(c) Drive wheels, idling wheels, vertical trunk rollers, belts, tires, wheel bearings and other parts of traveling devices;

(d) Springs, shock absorbers and other parts of suspension devices;

(e) Left and right rotation angle of steering wheel, knuckle, rod, arm and other parts of control devices;

(f) Brake capacity, brake drum, brake shoe and other parts of braking systems;

(g) Blades, booms, link mechanisms, buckets, wire ropes and other parts of work equipment;

(h) Hydraulic pump, hydraulic motor, cylinder, safety valve and other parts of hydraulic equipment;

(i) Voltage, amperage and relevant performance and components of electrical systems;

(j) Body, operating devices, head guards, back stoppers, access doors, protective covers, ladders and steps, locking devices, warning alarm devices, direction indicators, tyre air pressures and lightning devices; and

(k) Any additional inspection items stipulated in the manufacturer's official operation, maintenance and repair manual.

(6) Operation of any unit of Contractor's Equipment shall not be allowed to commence until the HSO has certified that it is safe to do so.

(7) The Contractor shall prepare standard checklists for all inspections and the HSO shall ensure that these are complied with, completed and signed and kept as a record in accordance with JSSS 1.32 [*Health and Safety Records*].

4.2.2 Defects and Repair During Operation

(1) If an operator notices any defect or abnormality in the Contractor's Equipment during operation (such as abnormal noise, temperature, smell, etc.) the operator shall stop the operation immediately.

(2) Necessary repair shall be provided by qualified mechanics, electricians or engineers.

(3) The HSO shall ensure that no further operation shall resume unless the above has been complied with and the Contractor's Equipment has been re-inspected by him and certified in accordance with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPP*].

4.3 SAFETY REQUIREMENTS

4.3.1 General Safety Measures

In addition to other safety and health requirements of JSSS, the Contractor shall:

(1) Ensure that there is sufficient lighting to perform all work safely and provide artificial lighting where necessary.

(2) Ensure that Contractor's Equipment is equipped with suitable protective safety devices such as covers, screens, guards, contact prevention devices, auto-stop devices, enclosures, barriers and the like as necessary to prevent injury to personnel from equipment or parts of equipment, where:

(a) There may be any risk of persons being hit by, caught or injured or entangled in any ropes, cables, sheaves, moving or rotating parts; and

(b) There may be any risk of persons being hit by flying debris, offcuts, or the like produced by the equipment.

(3) Ensure that Contractor's Equipment is equipped with suitable ladders and steps for access to the operating cab and also to all other levels and components to permit inspection, assembly, maintenance and repair of the equipment. When any Contractor's Personnel need to work at a height of 2 m or more, the Contractor shall take suitable measures in accordance with JSSS 2.5 [*Fall Prevention*], including the provision and use by such ~~all~~ Contractor's Personnel of guide ropes and PFAS.

(4) Prohibit personnel other than operators, workers and other authorised personnel from entering the place where Contractor's Equipment is in use for the Works.

(5) Ensure that each unit of Contractor's Equipment is provided with appropriate numbers and types of fire extinguishing equipment (where such equipment is necessary) and ensure that all operators and other Contractor's Personnel are trained in the use of such equipment and in fire safety procedures.

(6) Ensure that each working area where Contractor's Equipment is in use, is provided with appropriate numbers and types of first-aid equipment and such other facilities that are necessary to ensure safety and treat accidents and ensure that all operators and other Contractor's Personnel are trained in the use of such equipment and first-aid procedures.

(7) Post a label clearly showing the name of the operator on each unit of Contractor's Equipment together with the name and contact number of the HSO or a person in charge who shall be contacted in the event of breakdown or fault.

(8) Ensure that only the authorised operating, inspection and maintenance personnel access the mechanical, electrical and other components and systems of the Contractor's Equipment and prohibit all other persons from such access.

(9) Ensure that any inspection and maintenance covers, safety guards to prevent contact with moving parts and the like are not disabled, tampered with or removed except for repair, maintenance or any other justifiable reason.

(10) Ensure that installation, assembly, testing commissioning, operation and dismantling of all Contractor's Equipment is carried out under the direction of an Operation Leader, appropriately qualified, skilled and experienced in such activities for the particular type and capacity of equipment and in accordance with the manufacturer's operation, maintenance and repair manual.

4.3.2 Safety Measures During Cleaning, Inspection and Maintenance

The Contractor shall take the following measures for safety of Contractor's Personnel during cleaning, inspection and maintenance. Until such measures are taken, the Contractor shall prohibit any cleaning, inspection or maintenance personnel or other workers from entering the

areas.

(1) ~~Perform inspection and maintenance work~~Put Contractor's Equipment, wherever possible, on a level surface. Where such is not possible~~unavoidable~~, ensure that wheels are securely chocked to prevent any movement of equipment.

(2) Provide safety blocks or supports under cargo bed of vehicles to prevent them descending unexpectedly ~~during inspection and maintenance~~.

(3) Lower attachments (buckets and blades etc.) to the ground during any inspection and maintenance. Where unavoidable ensure that attachments are securely supported to prevent any fall or downward movement.

(4) Stop and isolate the functions completely, establish and implement lockout and tagout procedures to prevent accidents during inspection and maintenance. The lockout and tagout system shall fully isolate the starting system.

(5) Post warning signs to prohibit start-up or use of any Contractor's Equipment ~~during inspection and maintenance~~.

(6) Assign a Spotter.

(7) Ensure that only authorised personnel have access to the cleaning, inspection and maintenance area.

4.3.3 Safety Measures During Operation

(1) Unless otherwise specifically permitted by the HSO, all work involving the use of Contractor's Equipment shall be designated as Dangerous Work and the Contractor shall enclose the working area with temporary fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry - Dangerous Work*].

(2) The Contractor shall also ensure that:

(a) All operators are able to clearly see and communicate effectively with Spotters and other relevant persons;

(b) No Contractor's Equipment is operating beyond the capacity or operational limits officially prescribed by the equipment manufacturer;

(c) The surfaces upon which the Contractor's Equipment is working, and any adjacent surfaces and areas over which access is required, are sound, safe and suitable to support the equipment and the Contractor shall provide any temporary foundations, hardstanding or other surfaces, sleepers or steel plates as are necessary to ensure safety and stability of the equipment at all times;

(d) Spotters are always be provided to enable precise movement and positioning of Contractor's Equipment, particularly when reversing, loading and unloading, in dangerous areas or when the operator's view is not clear and at intersections with public roads;

(e) Where there is any risk of turnover, slippage, collapse or fall, Contractor's Equipment is equipped with seatbelts or safety harnesses and that such seatbelts and harnesses are used;

(f) Where there is any risk of turnover, slippage, collapse or fall, Contractor's Equipment is equipped with a "Roll-Over Protective Structure" (ROPS);

(g) Where there is any risk of injury to operators due to ~~falling~~ Falling ~~objects~~ Objects Contractor's Equipment is equipped with a "Falling Object Protective Structure" (FOPS);

(h) Operators are aware that they shall pay careful and constant attention to the

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position of any workers near to the operating area and particularly when mobile equipment is reversing;

(i) Operators of excavating equipment are aware that excavator buckets shall never pass over the operator's seat of another Contractor's Equipment;

(j) Workers shall not enter under a bucket which is loading material and shall keep away from dump trucks when loading or unloading materials; and

(k) No person shall ride on trucks, trailers or cargo bed other than cabin of vehicles unless permitted by the Law of the Country.

4.3.4 Safety Measures When Mobile Equipment Is Not in Use

(1) When mobile equipment is not in use, the Contractor shall ensure that operators:

(a) Park on surfaces which are level, sound, safe and suitable to support the equipment;

(b) Securely chock all wheels to prevent any movement;

(c) Lower attachments (buckets and blades etc.) to the ground;

(d) Stop and isolate the functions completely, fully engage brakes and lock the brake pedal; and

(e) Lock the equipment and store the starter key in the designated place.

(2) The Contractor shall prohibit all persons other than authorised personnel from entering the area where Contractor's Equipment is parked.

4.3.5 Safety Measures During Connecting and Removing of Attachments

The Contractor shall take the following measures when connecting and removing attachments (buckets, blades etc.) to Contractor's Equipment:

(1) Prevent any accident due to movement or fall of attachments by taking safety measures for example, connecting and removing attachments after locating them on stable and sound frames or on the ground.

(2) Prevent accidental movement or operation causing persons to be trapped in attachments by taking safety measures for example, parking of the Contractor's Equipment such that it cannot move (as mentioned in JSSS 4.3.4 (1) (a), (b) and (d)) and stop the engine.

4.3.6 Safety Measures During Loading and Transporting of Contractor's Equipment

The Contractor shall:

(1) Select and use trailers with associated ramps, other loading equipment and restraints which are suitable for the particular type, size and weight of the Contractor's Equipment and fit for the purpose for which they are intended.

(2) Select location and areas for loading and unloading which have sufficient space and surfaces which are level, sound, safe and suitable to support all of the equipment.

(3) Securely chock all wheels of trailers to prevent any movement.

(4) Stop and isolate the functions of trailers and load and fully engage brakes.

(5) Ensure trailers are equipped with tie down devices to allow secure fixing of load.

(6) Ensure that the weight and height of the loaded Contractor's Equipment does ~~do~~ not exceed actually required or legal limits.

(7) Ensure that all lights, brakes, steering and safety devices are working properly.

(8) Ensure that suitable, clear and legally compliant signage is attached to the trailer visibly indicating the maximum safe loading capacity, height of load, width, speed limits and

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any other restrictions or required information.

(9) Ensure that trailers are loaded evenly.

(10) Ensure that Contractor's Equipment loaded onto trailers is braked, wedged, securely locked in position and tied to the trailer with adequately sized chains, slings and other fixings and tensioned to prevent any movement during transit.

(11) Place any attachments on trailers and securely tie down.

(12) Inspect the tie-down tensioning, before and at intervals during transportation of Contractor's Equipment to ensure that there is no slackening.

(13) Inspect chains, slings and other fixings for securing transported Contractor's Equipment and if any abnormality is found, replace immediately.

4.3.7 Safety Measures During Loading and Transporting of Goods

The Contractor shall:

(1) When transporting heavy or long Goods on public roads, select roads on which the transportation does not pose danger to other traffic, third parties, structures adjacent to the transportation route, obtain all necessary permission from the relevant authorities including police and road authority before commencement of transportation and comply with all requirements.

(2) When transporting heavy or long material Goods within the Site, select suitable routes where the transportation does not pose danger to existing permanent or temporary buildings or structures or other works and obtain the consent of the HSO before commencement of the transportation and comply with all requirements.

(3) Ensure that Goods are loaded evenly.

(4) Secure all loads with adequate and tensioned slings and cover with protective sheets, to avoid any fall or collapse of the conveyed articles and prevent any risk to workers and third parties.

(5) Inspect slings for securing transported materials and if any abnormality is found, replace immediately.

4.3.8 ~~Site Access~~ Temporary Roads in the Site

The Contractor shall:

(1) Take measures for ensuring that ~~Site access~~ temporary roads in the Site are of suitable construction, of sufficient width, free from potholes, uneven settlement and collapse.

(2) Provide signs indicating height and weight restrictions, bends, speed limits, intersections, dangerous places and the like (road shoulders, cliff edges.).

(3) Separate roads for vehicles and walkways for workers and provide passing area for vehicles at places where the road is narrow.

(4) In large construction sites, provide exclusive transport roads which are one-way if possible and provide passing areas on narrow roads.

(5) Provide sufficient lighting facilities at necessary places along roads when work operating in night.

~~4.3.7~~4.3.9 Additional Requirements for Static Equipment

(1) The Contractor shall design and construct suitable foundations and support structures for static equipment with paved surfaces, screens, fencing and associated facilities for storage of material and product and for offices, access and the like all of which shall be suitable and fit for the purpose for which they are intended. Unless otherwise stated in the Contract, all such foundations, support structures, paved surfaces, fencing, screens

and associated facilities shall be demolished and removed and disposed of safely and in an environmentally acceptable manner by the Contractor ~~on~~until completion and taking over of the Works. All areas shall be backfilled, restored to a safe and suitable condition, cleaned and landscaped~~, all to the approval of the Engineer.~~.

(2) Unless otherwise stated in the Contract, all remaining aggregate, rock, cement, bitumen and the like used by or processed with the static equipment shall be removed and disposed of safely and in an environmentally acceptable manner by the Contractor on completion of use of the static equipment. ~~and taking over of the Works~~ All areas shall be backfilled, restored to a safe and suitable condition, cleaned and landscaped~~, all to the approval of the Engineer~~.

~~4.3.8~~4.3.10 Additional Requirements for Personnel and Goods Elevators and Material Conveyors

(1) General

(a) The requirements for conveyors stipulated in this ~~c~~Clause ~~–~~apply to ~~portable and~~ material conveyors;

(b) The Contractor shall undertake the daily and periodical inspection in addition to the items stipulated in JSSS 4.2 [*Inspection, Maintenance And Repair*]~~, JSSS 4.2.1 [*Requirements Generally*], (4) and (5)~~ (or at intervals required by the manufacturer's official operation, maintenance and repair manual), carry out any necessary maintenance and repair and when necessary obtain re-certification of the HSO before any further operation of the Contractor's Equipment is permitted; and

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(c) The Contractor shall post the maximum load capacity and any restrictions on the use.

(2) Personnel and Goods Elevators

(a) Additional daily inspection items shall include checking for defects or operational faults with the following:

(i) Elevator enclosures, doors, guide-rails and runners;

(ii) Emergency stop and alarm systems;

(iii) Power, lighting and control systems;

(iv) Interphone systems;

(v) Brakes, clutches; and

(vi) Sheaves and pulleys.

(b) Additional periodical inspection items shall include checking for defects or operational faults with the following:

(i) Daily inspection items;

(ii) Wire ropes;

(iii) Winch and its foundation; and

(iv) Supporting structures, guy ropes, fixings and anchors.

(3) Material Conveyors

(a) Additional safety measures:

(i) Conveyor systems shall be equipped with an audible warning signal to be sounded immediately before starting up the conveyor;

(ii) Means for stopping the motor or engine shall be provided at the motor or engine location;

(iii) Emergency stop switches shall be provided and be arranged so that the conveyor cannot be started again until the actuating stop switch has been reset to running or "on" position;

(iv) Where a conveyor passes over work areas, roads and walkways, suitable guards shall be provided to prevent fall of the materials being conveyed; and

(v) Riding of workers on the moving belts shall be prohibited.

(b) Additional daily inspection items shall include checking for defects or operational faults with the following:

(i) Overrun and reverse run prevention devices;

(ii) Emergency stop switches; and

(iii) Guards.

(c) Additional periodical inspection items, shall include for checking for defects or operational faults with daily inspection items.

~~4.3.9~~4.3.11 Additional Requirements for Small Equipment and Tools

(1) Accessories and attachments shall be the standard types obtained from or recommended by the manufacturer of the equipment to which they are connected.

(2) Any repairs shall be carried out by competent persons approved by the HSO ~~and using the manufacturer's genuine or recommended spare parts~~.

(3) All small equipment and tools shall be tested by the HSO as safe for use after any repair or replacement of parts, before such equipment is put back into use.

~~4.3.10~~4.3.12 Additional Requirements for Electric Powered Equipment

(1) Electric powered equipment specified in this ~~clause~~ Clause shall include portable electric powered mobile equipment or tools and shall form a part of the small equipment and tools listed in JSSS 4.1.1 (7).

(2) The Contractor shall undertake the following additional daily inspection items, (or at intervals required by the manufacturer's official operation, maintenance and repair manual), carry out any necessary maintenance and repair and when necessary obtain re-certification of the HSO before any further operation of the Contractor's Equipment is permitted:

(a) Defects or operational faults with grounding such as disconnection of grounding wire and insecure fixing of grounding electrodes;

(b) Damage to insulation and protective coverings of all wires and cables including flexible cables; and

(c) Damage to plugs, sockets, transformers and all wiring fittings and appliances.

(3) The Contractor shall comply with the following additional safety requirements:

(a) Use waterproof switches and socket outlets with covers, securely fixed and located in accessible and dry places;

(b) Label and paint electrical power and switch boxes with warning signs and coloured hazard markings;

(c) Use rubber cabtyre cables for all electrical power equipment;

(d) Wherever possible provide an ELCB (Earth Leakage Circuit Breaker) or RCD (Residual Current ~~Current Sensing~~ Device) in the electrical supply to ~~each item of~~ electrical equipment;

(e) If for any reason, an ELCB or RCD cannot be provided, ensure that the metal

exterior of the electrical power supply, metal outer casing of electric motors and the electrical equipment are all grounded;

(f) Avoid hanging electric cables and wires directly on nails, reinforcement or S~~s~~caffolding and the like to prevent damage to the insulation and protective covering;

(g) Turn off the power before repairing, moving or maintaining electric power equipment;

(h) Replace fuses with correct type and rating, prohibit replacing fuses with a higher rating or with iron or copper wire;

(i) Ensure that fuses are replaced by an authorised person;

(j) Prevent any use of electric power equipment from use in the rain, or when the user is wet, standing in water or is not wearing rubber soled insulated footwear or when the electric power equipment is wet;

(k) When any operational fault is identified immediately turn off the power, unplug and stop using the equipment and advise (or hand to) the HSO;

(l) Ensure that workers using electric power equipment wear appropriate PPE suitable for the electric power equipment in use such as working clothes, protective helmets, safety shoes, eye and face protection, ear protection; and

(m) When electric shock accident occurs, unplug and stop using the equipment and advise (or hand to) the HSO and take measures in accordance with JSSS 1.~~24~~ 25 [*Measures at the Time Accidents Occur~~Accident Response Plan~~*].

~~4.3.11~~4.3.13 Additional Safety Measures during Adverse Weather

Further to the requirements of JSSS 2.7 [*Adverse Weather Requirements*], the Contractor shall ensure that Contractor's Equipment is parked in a stable and secure state by taking all necessary measures including:

(1) Dropping the jib, boom, arm and attachments to ground level and securing where necessary with adequate anchors and chains.

(2) If heavy rain and flooding can be anticipated, moving Contractor's Equipment to higher ground or to places ~~where there is no~~ risk of instability is limited.

(3) Removing snow or ice.

4.4 ROPES, SLINGS AND CHAINS

4.4.1 Requirements Generally

(1) The Contractor shall ensure that untested, uncertified, broken, damaged, deformed or defective ropes, chains or slings shall not be used.

(2) The safety factor for wire ropes, slings and chains shall be as recommended by the manufacturer of each type.

(3) Requirements for Ropes, slings and chains shall be as specified in JSSS 5.4 [*Rigging Equipment*].

4.5 ALTERNATIVE USE OF CONTRACTOR'S EQUIPMENT

4.5.1 Requirements Generally

The Contractor shall not use Contractor's Equipment for any other purpose than the purpose for which it is designed and other than the purpose recommended by the manufacturer.

Use of Contractor's Equipment for any other purpose than the originally intended purpose are allowed only if it is not prohibited by either of the Law of the Country and the manufacturer's

official operation, maintenance and repair manual and subject to HSO's approval after reviewing all the safety aspects.

In particular, when equipment for excavation is to be used for lifting, the HSO shall, in addition to other requirements provided in JSSS, confirm:

(1) Rigging Equipment such as hook is attached on an appropriate part of the excavation equipment (e.g. arm or bucket).

(2) Arms, bucket, Rigging Equipment have enough strength to lift the load.

(3) ~~There is no risk that T~~the lifting devices such as hook and shackles are firmly attached to ~~will be detached from~~ arm or bucket of the equipment.

(4) The lifting capacity for alternative use is confirmed by loading tests at the Site.

~~(5) Ensure that operators understand the equipment capability, are properly trained in the alternative use, are fully aware of and follow the manufacturer's written instructions and load charts.~~

~~(6)~~(5) Ensure that operators have accurately determined the total weight of the load, taking account of the weight of any attachments, the reach and angle and configuration of the equipment and have informed the HSO of this and obtained his permission before commencing the operation.

~~(7) Check the working area and improve the ground surface as necessary to ensure the stability of the equipment.~~

~~(8) Ensure that the equipment is stable, if provided lower stabilisers, if the equipment is equipped with a blade, lower the blade to the ground for added stability and ensure that necessary counterweights are in place.~~

~~(9) Check the rigging to ensure it is appropriate to the use and rated to handle the load. Inspect it before each use for any signs of damage or wear, and make sure it is properly secured to the machine and load.~~

~~(10) Ensure that the area is clear of any unnecessary personnel, Spotters should be the only individuals in the immediate area, and should be stationed clear of the lift area yet visible to the operator throughout the operation.~~

~~(11) Lift the load slowly, keep the lifting point directly over the centre of the load, keep the load as close to the machine and the ground as possible and position the equipment to hoist and lower end on, not sideways.~~

~~(12) If there are any signs of instability or loss of control of the machine or load, discontinue the lift and lower the load to the ground.~~

4.6 HIRED/LEASED CONTRACTOR'S EQUIPMENT

4.6.1 Requirements Generally

(1) Contractor's Equipment from hire or lease companies shall comply with all of the requirements of ~~the Contract and~~ JSSS as if it were the Contractor's own property, in particular the Contractor shall ensure compliance with the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

(2) The Contractor shall ensure that the hire/lease companies have performed all necessary inspection, maintenance and repair works before the Contractor's Equipment is mobilised to the Site and that the following is provided with the equipment to the Contractor upon mobilisation and is available for the inspection of the Engineer:

(a) Inspection and maintenance records;

(b) Operation, repair and maintenance manuals; and

コメントの追加 [J55]: 目的外使用のことをあまり長々と書きたくない。JSSS の他のところで読めるような部分は削除してよい。

(c) Spare and replacement parts, tools, maintenance equipment, lubricants, filters, hydraulic fluids and the like.

(3) The Contractor shall double-check to ensure that the inspection and maintenance has been carried out and if the Contractor has any doubt over the adequacy of such inspection or maintenance or if complete records are not made available, the Contractor shall not allow this Contractor's Equipment to be used upon the Works. The Contractor shall inspect and carry out full maintenance and repair on such equipment in compliance with the requirements of this Chapter before it is certified for use by the HSO and used upon the Works.

(4) Operators from hire/lease companies are by definition Contractor's Personnel and they shall be treated as if they are employed by the Contractor, in terms of compliance with ~~the Contract and~~ JSSS.

(5) Operators shall be tested and certified by the HSO, shall receive safety training and shall perform all inspection, maintenance and other requirements fully in compliance with JSSS, in the same way as the Contractor's own employees.

4.7 TEMPORARY FUELLING FACILITIES

4.7.1 Requirements Generally

(1) ~~Unless otherwise specified in the Particular Safety Specification,~~ When the Contractor uses ~~shall design and construct~~ temporary fuel storage and dispensing facilities at the Site for the use of Contractor's Equipment, the Contractor shall design and construct them so that ~~. These facilities~~they shall be substantial and secure and capable of storing and dispensing fuel in a safe and environmentally acceptable manner all to the approval of the Engineer.

(2) The facility shall include storage tanks, suitable foundations, support or containment structures, protective bund walls as necessary, paved surfaces, screens, fencing and associated facilities for storage of separate fuels and lubricants and for offices, access and the like all of which shall be suitable and fit for the purpose for which they are intended.

(3) Unless otherwise specified in the Contract, all such tanks, foundations, support and containment structures, paved surfaces, fencing, screens and associated facilities shall be demolished and removed and disposed of safely and in an environmentally acceptable manner by the Contractor until~~on~~ completion and taking over of the Works. All areas shall be backfilled, restored to a safe and suitable condition, cleaned and landscaped, all to the approval of the Engineer.

(4) The Contractor must ensure that the temporary fuel storage and dispensing facility is operated and occupied at all time only by authorised personnel and that all unauthorised personnel are prohibited from entering such areas at all times. The Contractor shall be particularly careful and provide measures to prevent any unauthorised access, tampering, damage and theft at any time.

(5) All storage tanks shall be bunded either as jacketed tanks or by providing bunded enclosures, such that in the event of a catastrophic failure, the tank contents will be safely contained and shall not be allowed to run freely or enter the surface or ground water systems.

(6) The Contractor is reminded of the requirements of JSSS 2.8 [*Fire Prevention*] and will be required to provide a comprehensive and a high standard of fire protection in fuel storage areas.

CHAPTER 5: HOISTING AND RIGGING

5.1 GENERAL REQUIREMENTS

5.1.1 Scope

(1) This Chapter specifies the safety requirements for Hoisting and Rigging Works which shall include:

(a) Hoisting Operations;

(b) Hoisting Equipment; and

(c) Rigging Equipment.

and hereinafter collectively referred to as "Hoisting and Rigging".

(2) General requirements for Contractor's Equipment for Hoisting and Rigging (including cranes) are included in JSSS Chapter 4 [*Contractor's Equipment*].

Additional particular requirements are contained in this Chapter.

5.1.2 Definitions

Definitions of terms for the purpose of this Chapter are as follows:

(1) "**Hoisting Equipment**" means Contractor's Equipment such as cranes, hoists, chain-blocks, pulleys and the like which constitute the prime mover that, when used with Rigging Equipment, permits loads to be hoisted or lowered and positioned.

(2) "**Rigging Equipment**" means the ropes, webbing, chains and slings together with all associated accessories such as hooks, hoisting points, shackles, etc. that, when used with Hoisting Equipment, permits loads to be hoisted or lowered, and positioned.

(3) "**Rated Capacity**" means the maximum hoisting load for ~~each~~certain -type~~s~~ of Hoisting Equipment as officially recommended~~permitted~~ by the manufacturer. This will vary according to configuration of Hoisting Equipment and conditions of use such as length and angle of boom and other factors as ~~permitted~~officially recommended by the manufacturer.

(4) "**Safe Working Load**" means the maximum safe working load for each type, size and capacity of Hoisting Equipment and Rigging Equipment as officially recommended by the manufacturer.

(5) "**Rigger**" means a competent person who is certified by the HSO as suitable for assignment to Hoisting and Rigging under this Chapter in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*].

5.1.3 Compliance Standards

(1) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Chapter or relevant to the subject of this Chapter and which are not fully covered by JSSS, the Contractor shall comply with the technical requirements of the following standards in OSHA PART 1926 - Safety and Health Regulations for Construction:

(a) Subpart H - Materials Handling, Storage, Use, and Disposal; Section 1926.251 Rigging equipment for material handling;

(b) Subpart R- Steel Erection; Hoisting and rigging;

(Whilst this standard is related to Steel Erection, JSSS requires these technical requirements to apply to Hoisting Operations and associated rigging requirements in construction works generally)

(c) Subpart CC - Cranes and Derricks in Construction; Section 1926.1413 Wire Rope - Inspection and Section 1926.1414 – Wire Rope - Selection and installation

コメントの追加 **[YM56]:** Rated capacity は mobile Clane と tower Clane に限定され、その他のクレーンには safe working load が適用されるはずです。

criteria.

5.2 HOISTING OPERATIONS

5.2.1 Instruction for Contractor's Personnel

Further to the requirements of JSSS 1.7 [*Contractor's Safety Plans*], JSSS 1.9 [*Contractor's Method Statements*] and JSSS 1.15 [*Contractor's Safety Management Activities*], the Contractor shall include details of the following in the Method Statement and Safety Plan for Hoisting Operations and shall fully inform all Contractor's Personnel associated with such Hoisting Operations of these requirements before the commencement of any such operations, including:

(1) Scope, Area and Risk of the Hoisting Operation

(a) The scope of the required Hoisting Operation, the Rated Capacity, Safe Working Load, nature of Goods to be hoisted, location, required methods and safety arrangements;

(b) The Hoisting Operation Boundary~~area limits~~;

(c) Requirements on the ground conditions for installation, appropriate installation method taking account of all Hoisting Operation requirements, site and working conditions, location of obstacles, etc.;

(d) The working environment of the nearby areas to which particular attention should be paid (e.g. storage of Dangerous Goods or Hazardous Substances, Hazardous Areas, Operational Areas, or Overhead Services);

(e) The preservation of safe access for Contractor's Equipment and persons to, within and around the Hoisting Operations working area; and

(f) The potential danger of Hoisting Operations to any persons that are on the Site, and who may be affected by such operations.

(2) Hoisting Operation and Rigging Requirements

(a) The type of Hoisting Equipment to be used and its Rated Capacity/Safe Working Load;

(b) The Safe Working Load and type(s) of Rigging Equipment to be used;

(c) Hazards associated with the Hoisting Operation;

(d) Role and responsibility of the operator and each Rigger;

~~(e) Establishing targets for the day;~~

~~(f)~~(e) Weight of Goods being hoisted;

~~(g)~~(f) The shapes and characteristics of Goods being hoisted;

~~(h)~~(g) The presence of any obstructions or Overhead Services and consequent restrictions on the movement and operation of Hoisting Equipment; and

(h) Connecting and disconnecting techniques.

(i) The communication and signalling requirements (equipment to be used and standard signals); and

~~(i)~~(j) The procedures in case of emergency.

(3) Identification of Personnel

(a) The identity of operators, Riggers and any other workers associated with the Hoisting Operation;

(b) The name of the authorised operator for each unit of Hoisting Equipment;

(c) The identity of and location(s) for Spotters;

(d) ~~The communication and signalling requirements (equipment to be used and standard signals); and~~

(e) ~~The procedures in case of emergency.~~

コメントの追加 **[J57]:** Shifted to (2) since they don't relate "Identification of personnel"

5.2.2 Operators and Riggers Generally

(1) The Contractor shall place signs on each unit of Hoisting Equipment showing the name of each authorised operator and clearly prohibiting all unauthorised persons from using, handling, operating or sitting at the controls of that equipment unit.

(2) Further to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*], the Contractor shall ensure that operators and Riggers are appropriately qualified, skilled and experienced in operation of the Hoisting Equipment to which they are assigned and duly certified as such by the HSO.

(3) Operators and Riggers shall be fully aware of the following:

(a) Work procedures, possible risks and operation methods;

(b) The need to stop all work when any defect or abnormality is detected;

(c) Not to remove, interfere with or override any safety devices;

(d) The identity of and location(s) for Spotters and the communication and signalling requirements including equipment to be used and signals; and

(e) The procedures in case of emergency.

(4) In addition, operators shall:

(a) Safely and competently operate the Hoisting Equipment;

(b) Keep all safety devices including emergency alarm and stop devices activated;

(c) Keep their assigned unit clean and carry out regular inspections prescribed by the Contractor before start of operation; and

(d) Inform ~~Ensure that~~ the Contractor's maintenance personnel ~~are made aware~~ of any apparent defect or maintenance requirements~~ and that such personnel have performed any required repair or maintenance before the start of operation~~.

(5) The Contractor shall assign only Riggers for Hoisting Operations and shall prohibit other workers from any involvement.

(6) The names of all assigned Riggers shall be posted prominently in the working area of the Hoisting Operation.

5.2.3 Safety Training

The Contractor shall provide health and safety training in accordance with JSSS 1.19 [*Safety Training Generally*]. taking account of the characteristics of the Hoisting Operations, Hoisting Equipment and Rigging Equipment.

5.2.4 Inspection of Hoisting Equipment and Rigging Equipment

(1) When the Hoisting Equipment is mobilised to the Site, the Contractor shall inspect the equipment complying with JSSS 4.2 [*Inspection, Maintenance and Repair*], to ensure that the equipment is free from defect and suitable for the planned Hoisting Operation.

(2) Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] and JSSS 4.2 [*Inspection, Maintenance and Repair*], the HSO shall ensure that all Hoisting Equipment and all Rigging Equipment is inspected and maintained when it is at the location of operation before the commencement of the first and of all subsequent Hoisting Operations.

Inspections shall include all items necessary to ensure the safe performance of the Hoisting Operations including the following examples and any further requirements due to the characteristics of the Hoisting Operation and the capability and condition of the Hoisting Equipment and Rigging Equipment including condition and performance of:

(a) Anti-two blocking devices (over-winding prevention devices) and over-load prevention devices;

(b) Other safety devices including brakes, clutches and controllers;

(c) Rails for trolley and runway;

(d) Hooks, sheaves, blocks, pulleys and the like;

(e) Cables, ropes and the like; and

(f) Rigging Equipment.

(3) Periodic inspection shall be made complying with JSSS 4.2 [*Inspection, Maintenance and Repair*] and include the following items:

(a) Condition of over-winding prevention devices, anti-two blocking devices (over-winding prevention devices), other safety devices, brakes, and clutches;

(b) Condition of wire ropes and hanging chains;

(c) Condition of the Hoisting Equipment;

(d) Condition of placement of winches; and

(e) Condition of electric wire, switchboard and controller.

(4) No Hoisting Equipment or Rigging Equipment shall be put into operation unless it has been inspected in accordance with the requirements of JSSS 4.2 [*Inspection, Maintenance and Repair*], and it is certified as safe to be used.

(5) The Contractor shall prepare standard checklists for the above regular and periodic inspections. The results of these inspections shall be recorded and kept in accordance with JSSS 1.32 [*Health and Safety Records*].

5.2.5 General Safety Measures for Hoisting Operations

The Contractor shall:

(1) Select Hoisting Equipment which has a Rated Capacity/Safe Working Load and function compatible with the work conditions and requirements, including loads, surface conditions, access, working area, radius and angle of boom, etc.

(2) Clearly display the Rated Capacity/Safe Working Load of the Hoisting Equipment so that all operators and Riggers are fully aware at all times.

(3) Select Rigging Equipment with Safe Working Load suitable for the Hoisting Operation.

(4) Select Rigging Equipment compatible with the purpose, work conditions and requirements.

(5) Ensure that operators and Riggers confirm that the load on the Rigging Equipment is less than the Safe Working Load.

(6) Activate all safety devices of Hoisting Equipment throughout the entire operation time(s) of any Hoisting Operations.

(7) Prohibition of entry

(a) Designate all Hoisting Operations as “Dangerous Work”, enclose the entire working area which is subject to any risk by providing temporary fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that

are required by JSSS 2.3 [*Prohibition of Entry – Dangerous Work*]; and

(b) The Contractor shall take measures to keep any unauthorised personnel away from any area where there is any risk of injury arising from the Hoisting Operation, due to fall of hoisted Goods, tangling, snagging, rebound of broken ropes or cables, broken sheaves, droppage and the like.

(8) Signalling

(a) Signalling between operators, Riggers and any associated workers regarding the Hoisting and Rigging Operations, shall only be carried out by Riggers, (hereinafter referred to as signallers);

(b) Signallers shall be located in a safe place outside the immediate area where the Rigging and Hoisting Operations are taking place, but in a location where they can clearly see suspended loads and can also see the operator and also be seen by such personnel;

(c) When it is not possible for signallers to give direct visible signals to the operator, hand-held radios or other communication tool as approved by HSO must be provided and used; and

(d) In addition, Spotters shall be placed and used only to keep any unauthorised personnel away from the working area.

(9) During Hoisting Operations:

(a) Check if the hoisting points, hooks and the like are positioned above the centre of gravity of the load to be hoisted;

(b) At commencement of all Hoisting Operations, stop the hoist at 30 cm from hoisting level, to check stability and ensure that all is in order before proceeding;

(c) Ensure that there are no persons and objects within the turning area when the Hoisting Equipment turns;

(d) After hoisting loads up to the safe height, adjust the boom gently;

(e) Always pay attention to any movement of the boom and the condition of suspended loads; and

(f) When unloading or detaching loads, stop once before landing and check the condition of the landing place and the load and then continue to lower gently.

(10) Ensure that o~~O~~perators shall never leave their seat or leave the controls while Hoisting Operations are in progress.

(11) Defects with Hoisting Equipment during operation

(a) Ensure that if operators notice any defect or abnormality in the Hoisting Equipment during Hoisting Operations (such as abnormal noise, temperature, smell, etc.) the operator shall stop the Hoisting Operation immediately;

(b) Identify the cause of the defect or abnormality and make necessary repairs by using authorised and qualified specialist mechanics, electricians or representative technical engineers authorised by the ~~hoisting~~ Hoisting Equipment manufacturer; and

(c) Ensure that the repaired Hoisting Equipment shall not be put in operation unless certified by the HSO.

(12) Condition of Ropes, Slings and Chains

Ensure that untested, uncertified, broken, damaged, deformed or defective ropes, chains or slings shall not be used.

(13) Adverse Weather

Take the following measures in addition to JSSS 2.7 [*Adverse Weather Requirements*]:

(a) Hoisting Equipment is left in a safe condition when not in use and particularly if adverse climatic conditions can be anticipated;

(b) All anchors, outriggers and supports are secure and adequate to fix and support the Hoisting Equipment in position during any adverse climatic conditions;

(c) Booms and jibs shall be secured to prevent any instability or collapse; and

(d) Before resuming any Hoisting Operation after any adverse weather, inspect Hoisting Equipment using the daily and periodic checklists specified in JSSS 5.2.4 [*Inspection of Hoisting Equipment and Rigging Equipment*].

(14) Use of Hoisting Equipment for Contractor's Personnel

As a general rule, Hoisting Equipment shall not be used for transporting or hoisting Contractor's Personnel.

In exceptional circumstances and if so approved by the HSO, use of Hoisting Equipment may be allowed when the following all measures are taken:

(a) Dedicated gondola for transporting or hoisting shall be provided;

(b) Prevention measures shall be taken to avoid turning and falling of gondola;

(c) The assumed load (i.e. 1.3 times of total weight of gondola and workers on board plus 500 kgf) shall not exceed the Rated Capacity/Safe Working Load of the Hoisting Equipment;

(d) Wires and ropes of Hoisting Equipment shall have a safety factor of at least 10 against the assumed load;

(e) Wire ropes of Hoisting Equipment shall have a safety factor of at least 10 against the assumed load;

(f) Lowering the gondola shall be by powered system which prevents any free drop; and

(g) Use of PFAS of any Contractor's Personnel in the gondola shall be ensured.

5.3 HOISTING EQUIPMENT - CRANES

~~(Refer also to JSSS Chapter 4 [*Contractor's Equipment*])~~

コメントの追加 **[J58]:** Already referred to in JSSS5.1.1.

5.3.1 Planning, Installation and Removal

Unless otherwise approved by the HSO, the Contractor shall employ an appropriately qualified, skilled and experienced crane specialist(s) that shall select the required type and capacity of crane, plan the Hoisting Operation including mobilising, assembly, erection, use, dismantling and removal of cranes. The Contractor's specialist shall:

(1) Investigate the location and position for installation, plan the appropriate installation method taking account of all Hoisting Operation requirements, site and working conditions, location of obstacles, etc.

(2) Investigate the working area and ensure the safety of the crane and any crane rails.

(3) Design and construct crane foundation, assemble and install the crane with proper structural design and in compliance with the manufacturer's written instructions.

(4) Conduct completion inspection, load test and stability test of the crane.

(5) Dismantle and remove and transport cranes in a planned and systematic manner in compliance with the manufacturer's written instructions.

5.3.2 Additional Requirements for Mobile cranes

(1) Position mobile cranes where there are no obstacles within the operation range.

(2) Where obstacles exist, plan the appropriate operation to avoid the obstacles and ensure that operators and signallers comply with this plan.

(3) Ensue that ground has sufficient and even bearing capacity to prevent ~~avoid all risk of~~ the crane from subsiding and overturning. Where necessary or where there is any risk of damaging surface paving or underground services, provide temporary steel plates of suitable size, thickness and to support the crane and avoid any risk of overturning during operation.

(4) Provide steel plate load-spreader pads to support outriggers and prevent them from subsiding.

(5) Fully extend outriggers or extension type crawlers to the maximum position.

(6) When the outriggers or crawlers cannot be extended to the maximum position, adjust the Rated Capacity of the mobile cranes to suit lower capacity commensurate to the actual extension length of outriggers or crawlers.

(7) Ensure that the actual Rated Capacity of the mobile crane is clearly shown and also advised to operators and Riggers.

(8) Activate the over-load prevention device of mobile cranes and accurately input the operational conditions of booms and outriggers.

(9) Cease the Hoisting Operation from time to time and check upon the condition of the outriggers or crawlers, implement adequate remedial measures if there is any subsidence and prohibit continuation of the Hoisting Operation until the crane has been re-inspected and certified as safe by the HSO.

(10) After the Hoisting Operation:

(a) When the mobile crane is not driven, fix the hooks of crane at the safe position;

(b) When the mobile crane is driven, take the following measures before driving:

(i) Attach fixing pin on each part;

(ii) Apply the brake of the turning device and winch drum; and

(iii) Turn off all switches related with operation of cranes.

5.4 RIGGING EQUIPMENT

5.4.1 Hoisting and Rigging Equipment

(1) All items of Rigging Equipment shall be labelled to show all pertinent information, such as the name of the manufacturer, date of manufacture, the Safe Working Load, date of the latest periodic inspection and its~~,~~ expiration date, etc.

(2) The Contractor shall obtain Rigging Equipment from reputable manufacturers approved by the HSO and shall not make or repair his own Rigging Equipment at the Site.

(3) Rigging Equipment shall only be used:

(a) When certified as safe ~~to~~ for use by the HSO in accordance with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*];

(b) Within the Safe Working Load; and

(c) In compliance with the manufacturer's written instructions.

(4) Rigging Equipment shall be removed from service, tagged as such and destroyed or removed from the Site, where required by the standards noted in JSSS 5.1.3 [*Compliance*

Standards] including (but not limited to) the following conditions:

(a) Wire ropes

(i) Where one-tenth or more of the element wires are broken or cut in any one strand.

(ii) Where the reduction ratio of diameter due to use, exceeds 7% of the original nominal diameter at the date of manufacture.

(iii) With kink or deformation.

(iv) With excessive wear, corrosion or defect.

(b) Chains

(i) Where elongation due to use exceeds 5% of the original nominal length at the date of manufacture.

(ii) Where the diameter of links has reduced by more than 10 % since the date of manufacture.

(iii) With excessive wear, cracks, corrosion or defect.

(c) Hooks, shackles

(i) Signs of deformation.

(ii) With excessive wear, cracks, corrosion or defect.

(d) Synthetic fibre ropes or slings

(i) Broken or cut strands.

(ii) With excessive wear or defect.

5.4.2 Further Safety Requirements for Rigging

The Contractor shall fully comply with the requirements of the standards noted in JSSS 5.1.3 [*Compliance Standards*] including taking the following measures to prevent the risk of injury:

(1) Attach colour-coded self-adhesive vinyl tape and labels for slings visibly indicating the month of inspection and whether suitable for use.

(2) Inspect all Rigging Equipment before start of works.

(3) Select and use suitable Rigging Equipment depending on the weight and shape of Goods.

(3) Apply appropriate set up, provide fittings and accessories including clips and friction pads during Hoisting Works to ensure that the hoisted load (including bundled loads) are secure and will not move or slip, for example, cable-laid slings referred to BS EN 13414-3 Steel wire rope slings – Safety, Part 3: Grommets and cable-laid slings.

コメントの追加 [J59]: ナンバリングがくるっています（（3）が二つある）

(4) Hoist loads at or above the centre of gravity.

(5) Attach guide ropes to the hoisted loads to assist with positioning.

(6) Securely store and protect Rigging Equipment to maintain in good condition and to prevent damage from rain, dust or contamination.

CHAPTER 6: TEMPORARY WORKS

6.1 GENERAL REQUIREMENTS OF TEMPORARY WORKS

This Section 6.1 applies to all Temporary Works included in JSSS Chapter 6.

6.1.1 Design and Provision of Temporary Works Generally

Unless otherwise specified in the Particular Safety Specification, the Contractor shall take all necessary measures for the study, design, management, provision, safe use and safe removal of all Temporary Works as necessary to safely and systematically execute the Permanent Works and in accordance with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*], JSSS 1.37 [*Design and Management of Temporary Works*] and the specified standards.

The Contractor shall comply with the requirements specified in the Contract for Temporary Works and:

(1) Provide Temporary Works which are fit for the purpose for which they are intended and fully in accordance with the JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

(2) Manage the design, use and removal of Temporary Works fully in accordance with JSSS 1.37 [*Design and Management of Temporary Works*].

(3) Maintain and repair all Temporary Works when in use to ensure the continued optimal and safe performance.

(4) Monitor all Temporary Works when in use and any affected Permanent Works, existing buildings, structures, ground or surfaces that may be affected by the Temporary Works through regular inspection and (where necessary and specified) with relevant instrumentation to ensure that the Temporary Works are performing safely, to the designed limits and intended purpose.

(5) ~~The Contractor shall~~ Ensure that:

(a) Modification of Temporary Works is not allowed unless it is authorised by the HSO;

(b) Unauthorised use of Temporary Works by any persons is not allowed;

(c) The HSO shall inspect all Temporary Works upon completion of erection and certify and label them as "Safe for Use" before any use is allowed;

(d) The HSO shall regularly inspect Temporary Works and certify and label them appropriately to ensure the continuous safe use or, in the event that faults are discovered, certify them as "Not Safe for Use" and prevent access to the Temporary Works until repaired and re-inspected;

(e) The HSO shall inspect Temporary Works upon the completion of the required Permanent Works and before Temporary Works are dismantled, demolished and removed accompanied by the Contractor's Temporary Works ~~specialist~~ staff specified in JSSS 1.37 [*Design and Management of Temporary Works*] as appropriate, and certify that the Permanent Works are completed and the Temporary Works can be safely removed; and

(f) The HSO shall inspect after removal of the Temporary Works to ensure that removal has been completed properly and that no part of the Temporary Works remains, that any rectification of the Permanent Works is completed and all is left in safe order and condition.

(6) Safety Plan for Temporary Works

The Contractor shall include details of all Temporary Works in the Safety Plan to be

submitted in accordance with JSSS 1.7 [*Contractor's Safety Plans*].

6.1.2 Method Statements

Refer to JSSS 1.9 [*Contractor's Method Statements*].

6.1.3 Monitoring the Performance of Temporary Works

(1) The Contractor shall monitor the Temporary Works to demonstrate that they are performing safely, to the designed limits and for the intended purpose.

(2) For more details, refer to JSSS 2.1.7 [*Monitoring and Records*].

(3) Contract Compliance

Notwithstanding the requirements of JSSS 2.1.7 [*Monitoring and Records*], the Contractor is reminded of his overall responsibility under the Contract for the Temporary Works.

The Contractor shall satisfy himself that the monitoring criteria and requirements specified in JSSS 2.1.7 [*Monitoring and Records*], or in other respective Chapters of JSSS and/or in the Particular Safety Specification, are sufficient to comply with his obligations under the Contract and he shall take any additional measures necessary to ensure the adequacy, stability and safety of Temporary Works.

6.1.4 Compliance Standards

(1) By reference to JSSS 1.37 [*Design and Management of Temporary Works*] and unless otherwise specified in the Particular Safety Specification, the Contractor shall comply with Sections 1 and 2 of BS5975, Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework as management standard with respect to design, erection, use and dismantling of Temporary Works.

(2) In relation to Temporary Works, the Contractor shall, subject to JSSS 1.4.5 [*Specified Standards*] also comply with:

(a) Section 3: Falsework of BS5975, Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework; ~~and~~

(b) Such standards that are referred to in particular parts of JSSS~~.~~; or

~~(b)~~(c) Other standards proposed by the Contractor to which the consent of the Engineer is provided.

6.2 EARTHWORK SUPPORT

6.2.1 General

(1) Refer to JSSS Annex 1.1: [*Definitions and Abbreviations*] for the definition of Earthwork Support.

(2) The Contractor shall maintain the structural integrity of the Works and Other Properties that could be affected by the Excavation Works and shall provide and maintain whatever Earthwork Support is necessary to comply with this requirement and ensure the safety of all persons that are in, under or adjacent to any excavation and to avoid any damage.

(3) Earthwork Support shall include for example ~~the provision of~~:

(a) Timberwork including sheeting, planking, strutting and support systems;

(b) Steel sheet piling including shoring, strutting and support systems;

(c) Specialised~~t~~ support systems such as diaphragm walling, steel pipe piling, contiguous piling, soldier piling and lagging, and the like;

(d) Ground improvement, slope stabilisation, injection, ground freezing and the like; and

(e) Ground Anchors.

(4) In the case of (a) and/or (b) hereof, the Earthwork Support may not be required, if in the opinion of the HSO, conditions of the site in excavation is sufficiently safe, stable and free from danger of movement or collapse, and he gives a permission of no-Earthwork Support~~The requirements for providing Earthwork Support may be waived by the HSO for the following excavations which have been inspected at the Site by him and judged by him to be safe, stable and free from any risk of movement or collapse~~:

(a) Excavation in rock; ~~and~~

(b) Excavation less than 1.5 m deep.

(5) For sloping or benched sides to excavations (in lieu of Earthwork Support), refer to JSSS 7.2.1 (3) ~~[*Excavation Work - Particular Safety Measures*]~~

6.2.2 Planning and Design

The Contractor shall design all Earthwork Support so that it is fit for the purpose for which it is intended and take account of ground conditions and surrounding conditions including:~~all relevant site data provided by the Employer, all relevant Site data obtained by the Contractor in accordance with GC 4.10 [*Site Data*] and including:~~

(1) The effects of ground water including liquefaction, boiling or piping, heave, displacement and the like.

(2) The effect of vibration from site operations including piling or ground improvement.

(3) The effect of adjacent road or rail traffic.

(4) The requirements for safe access and working space necessary to execute the ~~Permanent~~ Works.

6.2.3 ~~Inspection and~~ Monitoring

Refer to JSSS 2.1.7 [*Monitoring and Record*s] for general requirement of monitoring and records.
The Contractor shall prepare a Monitoring Plan consisted with visual and instrument monitoring based on the Table 6.2.1[Example of Visual and Auditory Monitoring Items] and Table 6.2.2 [Example of Instrument Monitoring Items]
The contents of the tables are reference only, and the Contractor shall prepare a detailed Monitoring Plan and submit to the Engineer as a part of the Safety Plan or the Method Statement.

コメントの追加 [伊藤60]: "hereunder" or "below"??

~~Refer to JSSS 2.1.7 [*Monitoring and Records*].~~

~~Further requirements for work in this Section are stated below.~~

~~(1) Visual Inspection and Monitoring~~

~~(a) The Contractor shall prepare a Visual Inspection Plan depending on the characteristics of the Site and the required Earthwork Support and carry out regular inspections based upon the content of the Plan; and~~

~~(a) Examples of inspection objects and inspection items are given in the following Table.~~

Table 6.2.1: Example of Visual and Auditory Monitoring~~Inspection~~ Items~~Plan~~

	~~Inspection Object~~Locations	Monitoring~~Inspection~~ Items
1	Earthwork Support: Faces, sheeting and piling	Meander/horizontal displacement and vertical displacement along top. Crack, deflection and swelling. Water leakage, mud inflow. Opening of joints or gaps in Earthwork Support.
2	Earthwork Support: Piles, waling~~s~~ and strutting	Deflection, deformation and abnormal sound of struts and waling and other members. Settlement, floatation and twist of piles. Vertical or horizontal displacement~~,~~ of struts and waling and other members. Opening of joints or breakage of cross members, or breakage and loosening of bolts.
3	Base of Excavation	Water spring and ground water flow. Sand boiling. Heaving of the base. Liquefaction.
4	Neighbouring or adjacent Ground, paving and roads	Cracks, collapse, subsidence of pavement or ground surfaces. Opening of joints in paving and kerbs.
5	Neighbouring or adjacent Buildings or Structures	Cracks, subsidence, deformation and tilting of structures.
6	Underground Utilities	Displacement or leakage of or damage to underground utilities.

~~(2) Instrument Monitoring~~

~~(a) The Contractor shall prepare an Instrument Monitoring Plan depending on the characteristics of the Site, the ground conditions and the Earthwork Support and carry out monitoring; and~~

~~(a) Examples of inspection objects and inspection items are given in the following Table.~~

Table 6.2.2: Example of Instrument Monitoring ~~Plan~~Items

	~~Object~~Locations	Monitoring~~Inspection~~ Items
1	Earthwork Support: Faces, sheeting and piling	Displacement, stress of Earthwork Support. Earth pressure and water pressure acting on Earthwork Support.
2	Earthwork Support: Piles, walings~~s~~ and strutting	Axial force of struts, other supports and ground anchors.
3	Base of Excavation	Displacement of base of excavation. Water pressure of ground water, rate of water inflow.
4	Neighbouring or adjacent ground, paving and roads	Displacement of neighbouring or adjacent ground. Ground water level.
5	Neighbouring or adjacent buildings or structures	Displacement; cracks, weakening, subsidence, deformation and tilting of structures.
6	Underground Utilities	Displacement or leakage of or damage to underground utilities.

6.2.4 General Safety and Construction Requirements

(1) Materials and equipment to be used for Earthwork Support shall be appropriate for the width and depth of the excavation and free from damage or defects that might impair their proper function.

(2) Workers shall not be allowed to enter any excavation until Earthwork Support is installed prior to the work.

(3) Earthwork Support shall proceed progressively so that no excavated faces are left without support or at risk of weakening or collapse at any time.

(4) Excavation to a level greater than 60cm below the planned bottom level of support when the support itself is not yet installed shall not be allowed.

(5) If temporary removal of individual members of Earthwork Support is necessary, safety measures shall be taken to ensure the safety of workers, such as installing additional temporary struts to support the additional loads imposed on parts of the system.

(6) When removing Earthwork Support, the Contractor shall prohibit anyone other than the workers engaged in the removal work to enter the working area and vicinity.

(7) Backfilling and compaction of any excavation shall be performed in parallel with the removal of Earthwork Support.

6.2.5 Safety Measures for Shoring

(1) "Shoring" shall include waling, shoring, strutting and like support.

(2) Shoring shall be securely installed and fixed to Earthwork Support to prevent detachment

and any movement or failure.

(3) All members acting in compression (excluding diagonal struts) shall be butt-jointed, and timber shoring shall be jointed with two or more doubling plates.

(4) Connecting parts of shoring or diagonal shoring or intersections, shall be reinforced with backing plates and bolts (timber) and welding with reinforcing plates (steel).

(5) For earth retaining work with intermediate piles, fix struts on intermediate piles rigidly.

(6) When shoring is fixed to or relies on an existing structure or building, the Contractor shall ascertain that the structure or building is able to withstand the applied load.

(7) Gaps between earth retaining wall (steel sheet piles, H-shape steel piles and the like) and waling shall be filled with mortar, concrete, steel plates and suitable wedges.

(8) Connections between struts and walings shall be reinforced with ready-made stiffeners, stiffener plates, concrete/mortar filling, stiffener jacks, etc.

6.2.6 Safety Measures for Ground Anchor Work

(1) Anyone other than designated personnel shall not operate the boring machine.

(2) No one (except those essential to the post-tensioning operations) shall be permitted to be behind the tensioning jack during tensioning to prevent any injury through breaking of the anchor tendon during tensioning.

(3) The Contractor shall check any damage in the grout hoses and joints before commencing any grout injection.

6.2.7 Adjacent Goods, Excavated Spoil and the like

(1) When placing any Goods, excavated spoil and the like on the ground surface at the top and adjacent to any excavation, the Contractor shall take measures to prevent it from falling.

(2) The Contractor shall not place any Goods, excavated spoil, backfill material and the like where the weight exceeds the load considered in the design of the Earthwork Support.

6.3 COFFERDAMS

6.3.1 General

(1) Refer to JSSS Annex 1.1: [*Definitions and Abbreviations*] for the definition of Cofferdam.

(2) Cofferdams are generally constructed as earth dykes, caissons, steel sheet piling, double steel sheet piles, steel pipe piles and the like.

6.3.2 Planning and Design

The Contractor shall design Cofferdams so that they are fit for the purpose for which they are intended and take account of ground conditions and surrounding conditions including: ~~take account all relevant site data provided by the Employer, all relevant Site data obtained by the Contractor in accordance with GC 4.10 [*Site Data*] and including:~~

(1) The effect of vibration from site operations including piling or ground improvement.

~~(2) The requirements for safe access and working space necessary to execute the Permanent Works.~~

~~(3) The effect of any vibration from site operations (e.g. driven piling).~~

コメントの追加 **[J61]:** duplicated with (4)

コメントの追加 **[J62]:** duplicated with (1)

~~(4)~~(2) Access and working space necessary to execute the Works.

~~(5)~~(3) River discharge, water levels, tide levels, wave height, free board, seismic load, external force and any other relevant river, lake or marine conditions.

~~(6)~~(4) Waterborne~~Marine~~ traffic.

~~(7)~~(5) Avoidance of any damage by piling operations and the protection of the structural integrity of existing river or canals, banks, dykes and the like.

~~(8)~~(6) Reduction of river cross sectional area, increased flow rates and protection of the structural integrity of existing river or canal banks, dykes and the like.

~~(9)~~(7) Effects of tides, wave action, flooding and the like, the consequent need for additional shoring and avoidance of loosening of shoring and joints.

~~(10)~~(8) Provision of at least two safe evacuation~~scape~~ routes from the working areas by means of ladders, stairs, etc. to evacuate in the case of any danger of collapse of or inundation in the Cofferdam.

~~(11)~~(9) Provision of life-saving equipment including buoyancy jackets, lifebuoy, ropes and (where necessary) standby boats.

~~(12)~~(10) Measures for avoiding water pollution from construction and dismantling of ~~cofferdams~~Cofferdams.

~~(13)~~(11) Measures for safe dismantling and removal.

6.3.3 ~~Inspection and~~ Monitoring

Refer to JSSS 2.1.7 [*Monitoring and Record*s] for general requirement of monitoring and records.
The Contractor shall prepare a Monitoring Plan consisted with visual and instrument monitoring based on the Table 6.2.1[Example of Visual and Auditory Monitoring Items] and Table 6.2.2 [Example of Instrument Monitoring Items]
The contents of the tables are reference only, and the Contractor shall prepare a detailed Monitoring Plan and submit to the Engineer as a part of the Safety Plan or the Method Statement.

~~Refer to JSSS 2.1.7 [*Monitoring and Records*].~~

~~Further requirements for work in this Section are stated below.~~

~~(1) Visual Inspection and Monitoring~~

~~(a) The Contractor shall prepare a Visual Inspection Plan depending on the characteristics of the Cofferdam and carry out regular inspections based upon the content of the Plan; and~~

~~(b) Examples of Inspection Objects and Inspection Types are given in the following Table.~~

Table 6.3.1: ~~Visual Inspection Items~~Example of Visual and Auditory Monitoring Item

	~~Inspection Object~~Locations	~~Inspection Type~~Monitoring Items
1	Cofferdam Generally	Water seepage. Ability and capacity of pumping arrangements to maintain safe working conditions. Meander/horizontal displacement and vertical displacement along top. Crack, deflection and swelling. Opening of joints.
2	Piles, shoring and strutting	Deflection, deformation and abnormal sound of piles, struts and waling and other members. Opening of joints or breakage of piles, cross members, or breakage and loosening of bolts.
3	Base of Excavation	Water spring and ground water flow. Sand boiling. Heaving of the base.
4	Neighbouring Properties or Structures on or outside the Site	Cracks, subsidence, deformation and tilting of structures.

~~(2) Instrument Monitoring~~

~~(a) The Contractor shall prepare an Instrument Monitoring Plan depending on the characteristics of the Site, the ground conditions and the required Cofferdams and carry out monitoring; and.~~

~~(a) Examples of inspection objects and inspection types are given in the following Table.~~

Table 6.3.2: Example of Instrument Monitoring Items

	~~Object~~Locations	~~Inspection Type~~Monitoring Items
1	Cofferdam Generally	Displacement, stress of Earthwork Support. Earth pressure and water pressure acting on Earthwork Support.
2	Shoring and strutting	Axial force of strut, other supports and ground anchors.
3	Base of Excavation	Displacement of base of excavation. Water pressure of spring of water, water inflow.
5	Neighbouring Properties or	Displacement: cracks, weakening, subsidence, deformation and tilting of structures.

	Structures on or outside the Site	
6	Underground Utilities	Displacement, damage or leakage of~~to~~ underground utilities.

6.3.4 General Safety and Construction Requirements

(1) For shoring works, refer JSSS 6.2.5[Safety Measures for Shoring]~~The Contractor shall construct the Cofferdams with shoring by the same method stipulated in JSSS 6.2.5 [*Safety Measures for Shoring*]~~.

(2) The Contractor shall provide training to all Contractor's Personnel who are to work on the construction, maintenance and removal of the Cofferdam or within the Cofferdam, so that they are aware of all risks and countermeasures including water leakage, adverse weather, severe waves or adverse river or marine conditions, so that they can work safely and when necessary, evacuate the working areas efficiently and safely.

(3) The Contractor shall display visible and clear warning notices of all hazards and advisory notices giving directions and information, including emergency contacts, safe evacuation~~escape~~ routes, directions to and locations of life-saving equipment, assembly areas, escape boats and the like.

(4) The Contractor shall implement measures to prevent collisions with waterborne~~marine or river~~ traffic, including warning signs and lights during the night or in heavy rain mist or fog.

(5) The Contractor shall establish a system to confirm the safety of the Cofferdams, appoint a person-in-charge who shall be present at all times and shall be responsible for issuing an evacuation order if and when necessary.

(6) The Contractor shall evacuate Contractor's Personnel whenever there is any danger due to water leakage through ~~cofferdams~~ Cofferdams or from the ground within the working area.

(7) Whenever any defect is identified in the Cofferdam, the Contractor shall implement repair and improvement measures to ensure the safety of Contractor's Personnel and prevent any personnel from re-entering the Cofferdam until it has been inspected by the HSO and certified by him to be "~~S~~safe for ~~U~~use".

6.3.5 Excessive and Sudden Rise in Water Level.

(1) The Contractor shall analyse any risk due to sudden rise of water level and excessive water level above the design basis for the highest water level and prepare for this as applicable in the Safety Plan.

(2) This shall include procedures for monitoring water levels as described below.

(a) Monitoring water levels with instruments and recording equipment at the Site and obtaining forecasting information of water levels;

(b) Communications among persons in charge of monitoring of water levels, persons responsible for the works in the Cofferdams, the HSO and workers in the Cofferdam;

(c) Instructions to Contractor's Personnel for evacuation;

(d) Stop work in accordance with JSSS 1.13 [*HSO – Scope of Duties and Authority*]; and

(e) Resume work when water level has subsided and after inspection and certification by the HSO that it is safe to do so.

6.3.6 Monitoring Water Level and Other Conditions

In addition to the requirements of JSSS 2.1.7 [*Monitoring and Records*], the Contractor shall monitor and keep records of all climatic, river and/or marine conditions in the direct vicinity of any Cofferdam including for example, the water level at various times throughout the day, tidal data, speed and direction of waterflow, wave height, wind speed and direction.

The Contractor shall provide all instruments and facilities to obtain the data and submit reports to the Engineer on a daily basis and compile on weekly basis.

6.4 WALKWAYS~~, LADDERS AND STEPLADDERS~~

6.4.1 General

(1) This Section includes safety measures relating to the safe movement of persons to and around the Site with respect to walkways.

(2) In this Section, "walkways" shall mean route or passage for safe movement of pedestrians including walkway, bridge type walkway, covered walkways, ramp, ladders and stepladders.

(3) Portable ladders and stepladders other than fixed ladders shall not be used for walkways in principle. Portable ladders and stepladders may be used, only if ~~provided that~~ the risk of their use is low.

(4) For temporary steps and staircase structures the requirements of JSSS 6.5 [*Scaffolding*] shall apply.

(5) For Fall prevention from walkways, ladders and stepladders the requirements of JSSS 2.5 [*Fall Prevention*] shall apply.

(6) Details of the following shall be included in the Safety Plan required by JSSS 1.7 [*Contractor's Safety Plans*] and JSSS 6.1.1 (6) [*Safety Plan for Temporary Works*]:

(a) Locations and available periods of walkways to be provided;

(b) Drawings of walkway structures, indicating structure type, materials and main dimensions for bridge type walkways where the height and length is 10m or more;

(c) Types of temporary walls, barriers or other separation between walkways and working areas, roads or footpaths on or around the Site; and

(d) Locations of emergency exits and evacuation routes.

(7) The Contractor shall:

(a) Provide designated walkways to, in and around the various workplaces at the Site to ensure the safe and secure movement of all persons at all times;

(b) Provide and maintain clear signage so that all users are aware of the locations and routes;

(c) Provide and maintain adequate lighting;

(d) Ensure that walkways have sufficient dimensions and load-bearing capability for the intended purpose;

(e) Ensure that there are no obstacles in walkways and that surfaces are level and safe, maintain all in a clean and orderly condition to avoid any falls, slips and injury;

(f) Ensure that walkways do not exceed a gradient of 30 degrees. Steeper gradients shall be provided with steps or staircases or ladders where appropriate; and

(g) Ensure that ramps, steps and staircases have slip resistant surfaces and that they are provided with handrails and toe boards in accordance with JSSS 2.5.5 [*Handrails*] and JSSS 2.5.6 [*Toeboards*].

6.4.2 Emergency Exits and Safe Evacuation~~escape~~ Routes

The Contractor shall provide clear and illuminated signage so that all persons are made aware of the locations of emergency exits and safe evacuation~~escape~~ routes and maintain all such locations and routes in a clean, safe and readily available condition.

6.4.3 Vertical Access

The Contractor shall provide steps, stairs and ramps as means of providing safe access or egress from excavations or different working levels.

Steps, stairs and ramps shall be constructed as follows:

(1) With ~~scaffolding~~ Scaffolding in accordance with JSSS 6.5 [*Scaffolding]*, provided with handrails and non-slip treads.

(2) With purpose made timber or metal ramps comprising plywood boarding and structural timber framing.

6.4.4 Portable Ladders and Stepladders

The Contractor shall comply with the following requirements regarding the use of portable ladders and stepladders:

(1) Portable ladders shall:

(a) Be of sound structure, clean and not contaminated by any slippery material;

(b) Be without visible signs of defect, damage, corrosion, and shall otherwise in safe condition;

(c) Be at least 30 cm wide;

(d) Have steps with an interval of 25cm to 35cm and evenly spaced; and

(e) Have slip-proof steps or have other measures to prevent slipping.

(2) Stepladders shall

(a) Be of sound structure, clean and not contaminated by any slippery material;

(b) Be without visible signs of defect, damage, corrosion, and shall otherwise in safe condition;

(c) Have an angle between the front rail and the floor not exceeding 75 degrees and for folding stepladders they shall be equipped with a lock (such as a spreader with lock) to secure the angle made by the front rail and the floor;

(d) Steps shall be non-slip and of sufficient size to ensure safe operation; and.

(e) Rails shall have non-slip feet or shoes.

(3) Use of ladders and stepladders

The Contractor shall ensure with respect to use of both ladders and stepladders that:

(a) Users shall read and follow all labels/markings on ladders or stepladders, be aware of and never exceed the maximum load rating of the ladder or stepladder and of the weight it is supporting, including the weight of any tools or equipment;

(b) Users shall avoid electrical hazards, always look for overhead power lines before handling ladders or stepladders. Avoid using metal ladders or stepladders near power lines or exposed energised electrical equipment;

(c) Ladders or stepladders shall be inspected prior to use. If a ladder or stepladder is damaged, it shall be removed from service and suitably tagged until repaired or discarded; and

(d) Ladders or stepladders shall only be placed on a stable, firm and sufficiently strong base giving level and safe support and so that the rungs or steps remain horizontal, as well as any loading placed on it;

(4) Additional Requirements for Use of ladders

The Contractor shall ensure with respect to use of ladders:

(a) Ladders shall maintain an angle between foot and floor of L (horizontal length): H (height) = 1: 4 (75.5 degrees);

(b) Ladders shall have the top projecting at least 1 m over the landing floor;

(c) Ladders shall not be placed on boxes, or other unstable bases to obtain additional height and connected ladders to give greater height or reach shall not be allowed;

(d) Suspended ladders shall be anchored in a secure manner so that they cannot be displaced or swing;

(e) Ladders shall be secured before any use and prevented from slipping during use by:

(i) Securing the side rails at or near the top and the bottom;

(ii) Providing an effective anti-slip shoe or foot; and

(iii) Having another worker support the lower part of the ladder.

(f) No extendable ladder shall be used where its sections cannot be locked and which could therefore move while in use; and

(g) Where a ladder or a series of ladders rise for a vertical height of 9 m or more above the base level, safe landing areas or rest platforms shall be provided at suitable intervals wherever possible.

(5) Additional Requirements for Use of Stepladders

The Contractor shall ensure with respect to use of stepladders:

(a) Stepladders shall not be used for work at heights of 2m or more. The Contractor shall adopt other measures for work in excess of 2m such as or providing Scaffolding in accordance with JSSS 6.5 [*Scaffolding*];

(b) Step ladders shall not be used as a single ladder or in a partially closed position;

(c) Treads of stepladders shall have the correct sized area and slip resistant finish for safe working;

(d) Restraint Clasps shall be securely locked before any use;

(e) Stepladders shall not be placed on unstable or uneven surfaces;

(f) Stepladders shall not be positioned in front of doors;

(g) The top rung of a ladder or step of a step ladder shall not be used as a rung/step unless designed for that purpose;

(h) For use of Stepladders as a support for trestle Scaffolds refer to JSSS 6.5 [*Scaffolding*]; and

(i) The user can maintain a safe handhold when carrying a load unless this is ~~otherwise~~ justified by the height of the task, nature of work and the like. ~~whether the handhold is available before and after the task, when it is light work, when it avoids side loading and overreaching, when the step ladder can be tied and in any event after a risk assessment has demonstrated that the use of a stepladder is safe and justified.~~

コメントの追加 [JICA63]: そもそも脚立はなるべく使わないということもあり、あまりこういうことを詳しく書かなくてもよいと判断しました。また、英語が華麗すぎてわからないので簡単にしました。

6.4.5 Inspection

In accordance with JSSS 1.13 [*HSO - Scope of Duties and Authority*] the HSO shall regularly inspect all walkways, ladders and step ladders, ensure that same are safe and fit for the intended purpose and visibly certify each as “Safe for Use” or otherwise.

6.5 SCAFFOLDING

6.5.1 General

(1) This Section contains requirements for various types of Scaffolding including supported scaffolds (for example tube and coupler scaffolds and fabricated frame scaffolds), mobile scaffolds, suspended scaffolds, trestle scaffolds and mobile elevating work platforms.

(2) Not all types of Scaffolding are separately described in this Section and the requirements of this Section are therefore of general application. Requirements for any one type of Scaffolding shall also apply generally to all types and configurations unless otherwise stated or apparent from the wording and context.

(3) All Scaffolding shall be designed, erected, tested, inspected, used, dismantled and removed by Contractor's Personnel that have been trained and certified for such operations in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*].

(4) All Scaffolding, shall be carried out in compliance with the manufacturer's written instructions or the design of the Contractor.

(5) The design, management, provision, safe use and safe removal of Scaffolding shall comply with the requirements of JSSS 6.1.1 [*Design and Provision of Temporary Works Generally*].

(6) Unless specified elsewhere in JSSS or in any of the compliance standards, all Scaffolding and Scaffold components shall be capable of supporting, without failure, its own weight and at least 4 times the maximum intended load applied or transmitted to it.

(7) Scaffolds and Scaffold components shall not be loaded in excess of their maximum intended loads or rated capacities, whichever is less.

(8) Scaffolding shall not be used for any purpose other than the intended original purpose and for example shall never be used for hoisting loads. The Contractor shall provide other specific types of Contractor's Equipment (such as material hoists) for that purpose.

(9) Scaffolding shall be removed immediately upon completion of the work for which it is provided.

6.5.2 Compliance Standards

(1) By reference to JSSS 1.4 [*JSSS – Compliance with JSSS and Other Regulations*], any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall comply with the technical requirements of any one of the following standards:

(a) OSHA PART 1926-Safety and Health Regulations for Construction, Subpart L-Scaffolds;

(b) ANSI/ASSP A10.8 – 2019 Scaffolding Safety Requirements equipment - Part 1: Scaffolds - Performance requirements and general design, USA; and

(c) BS EN12811-1:2003 Temporary works equipment - Part 1: Scaffolds - Performance requirements and general design, UK.

6.5.3 Notices to be Displayed on Scaffolds

(1) Following inspections by HSO, suitable signage shall be applied to Scaffolds clearly indicating for example:

(a) "Scaffold Complete and Safe For Use"

(b) "Scaffold Not Complete - Do Not Use"

(c) "Scaffold Not Safe For Use"

(2) When any Scaffold is to be used for loading of Goods, the Contractor shall display a notice indicating the maximum load capacity of each Scaffold.

(3) Scaffolds shall also be tagged with the names of the erector and the person responsible for inspection and maintenance of the Scaffold.

(4) All notices shall be clearly visible and in easy-to-see locations.

6.5.4 Scaffolding Assembly, Erection, Alteration and Dismantling Generally

The Contractor shall take the following measures when assembling or erecting, altering or dismantling all types of Scaffolding:

(1) Scaffolding shall be assembled or erected, altered and dismantled only by competent personnel and the work should always be carried out under the direction of a competent Superintendent.

(2) Working areas where Scaffolding is being assembled or erected, altered and dismantled shall be ~~designated as Dangerous Areas, and the Contractor shall~~ enclosed ~~the working area~~ with temporary fences or barriers~~.~~ The Contractor shall prevent entry of any non - authorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry - Dangerous Work*].

コメントの追加 [J64]: 定義語になっていない。

(3) During erection of Scaffolding 2 m high and above, boarded areas shall be provided for safe temporary storage of Scaffolding tubes, couplings, fittings or components and other materials and equipment.

(4) All workers engaged in the assembly or erection, alteration and dismantling of any Scaffolding shall be provide with PFAS and ensure that such workers use this.

(5) Scaffold boards shall each be securely fixed at a sufficient number of points to provide constant support with no movement or dislocation and no gaps that may create a dropping hazard.

(6) When moving Scaffold boards, ensure that they are securely supported in at least three (3) locations, the length of any projection from supports shall be at least 10cm and not exceeding one-eighteenth of the length of the Scaffold boards.

(7) When stacking the timber sole plate or runners ensure that they are stacked in the longitudinal direction, over supports and with 20 cm overlaps.

6.5.5 Inspection and Maintenance of Scaffolding

Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the Contractor shall comply with the following:

(1) Every Scaffold from which a person could fall 2 m or more shall be thoroughly examined by the HSO (or his delegated assistant):

(a) Before it is brought into use;

(b) After any substantial alteration or extension;

(c) At least once in every 7 days; and

(d) Whenever it has been exposed to adverse climatic conditions, earthquake or other factors which may have affected its safety.

(2) A written record of the examination and regular inspections with details of any repair measures shall be prepared and kept by the HSO.

(3) The examinations and regular inspections shall include:

(a) Check that the Scaffold is provided and used in accordance with the Method Statement, Safety Plan and its design;

(b) Condition of ~~w~~Working Pplatforms and of any damage to fixings;

(c) Condition and any loosening at the fastening, connecting and mounting, portions of standards, ledgers, brackets, and the like;

(d) Condition and any damage and corrosion of couplings, fittings, clamps and accessories;

(e) Condition and any damage and corrosion of fall prevention facilities and that they are intact and secure;

(f) Condition of mountings and presence of toe boards;

(g) Condition of bases, screw jacks, castors, brakes, sole plates and the like and ensure there is no movement or settlement;

(h) Condition of mountings and presence of diagonal bracings, stays, anchors, ties and other bracing, support or reinforcement materials; and

(i) Condition of mountings and presence of posts, standards, ledgers and transoms.

(4) The Contractor shall carry out all necessary remedial and repair work necessary to rectify any deterioration, defect or damage and shall, if ~~necessary~~necessary, stop the use of the Scaffolding until such work has been properly completed, re-inspected and re-certified as "Safe for Use" by the HSO.

6.5.6 Scaffold Platforms

Scaffold platforms shall comply with the following:

(1) Each platform on all working levels of Scaffolding shall be fully planked or decked between the front uprights and the handrail supports as follows:

(a) Platforms shall be of adequate size and strength and with true dimension and no twist or bending, no splits, holes or damage;

(b) Each platform unit shall be installed so that the space between adjacent units and the space between the platform and the uprights is no more than 2.5 cm wide, except where the Contractor can demonstrate that a wider space is necessary;

(c) Where the Contractor makes the demonstration provided for in paragraph (b) above, the platform shall be planked or decked as fully as possible and the remaining open space between the platform and the uprights shall not exceed 24 cm.; and

(d) The requirement to provide full planking or decking does not apply to platforms used solely as walkways or solely by the workers performing Scaffold erection or dismantling. In these situations, only the planking that the Contractor establishes is necessary to provide safe working conditions is required.

(2) Except as may be provided separately for individual types of Scaffold, Scaffold platforms and walkways shall be at least 45 cm wide.

Where it is not practicable to provide 45 cm width, the Contractor shall secure a width as wide as feasible for the work, ~~scaffolds~~ Scaffolds ~~must be used in areas that the Contractor can demonstrate are so narrow that platforms and walkways cannot be at least 45 cm wide, such platforms and walkways shall be as wide as feasible,~~ and the workers on those platforms and walkways shall be protected from fall hazards by the use of handrails and/or personal fall arrest systems.

(3) Except as provided separately for individual types of Scaffold, the front edge of all platforms shall not be more than 36 cm from the face of the work, unless handrails are erected along the front edge and/or personal fall arrest systems are used to protect the workers from falling.

(4) Further requirements to those specified above, shall comply with the technical requirements of OSHA Subpart L-Scaffolds, 1926.451 General requirements, (b) Scaffold platform construction.

6.5.7 Supported Scaffolds

(1) General

(a) Scaffolds with a height to base width (including outrigger supports, if used) ratio of more than four to one (4:1) shall be restrained from tipping by guying, tying, bracing, or equivalent means;

(b) Poles, legs, posts, frames, and uprights shall bear on base plates and mud sills or other adequate firm foundation;

(c) Footings shall be level, sound, rigid, and capable of supporting the loaded Scaffolding without settling or displacement;

(d) Poles, legs, posts, frames, and uprights shall be plumb and braced to prevent swaying and displacement;

(e) When moving platforms to the next level, the existing platform shall be left undisturbed until the new bearers or end frames have been set in place and braced prior to receiving the new platforms; and

(f) Further requirements to those specified above, shall comply with the technical requirements of OSHA Subpart L-Scaffolds, 1926.451 General requirements, (c) Criteria for supported Scaffolds.

(2) Tube and Coupler Scaffolds

(a) Transverse bracing forming an “X” across the width of the Scaffold shall be installed at the Scaffold ends and at least at every third set of posts horizontally (measured from only one end) and every fourth runner vertically;

(b) On straight run Scaffolds, longitudinal bracing across the inner and outer rows of posts shall be installed diagonally in both directions, and shall extend from the base of the end posts upward to the top of the Scaffold at approximately a 45 degree angle;

(c) Where conditions preclude the attachment of bracing to posts, bracing shall be attached to the runners as close to the post as possible;

(d) Bearers shall be installed transversely between posts, and when coupled to the posts, shall have the inboard coupler bear directly on the runner coupler. When the bearers are coupled to the runners, the couplers shall be as close to the posts as possible;

(e) Runners shall be installed along the length of the Scaffold, located on both the inside and outside posts at level;

(f) Couplers shall be of a structural metal, such as drop-forged steel, malleable iron, or structural grade aluminium, the use of grey cast iron is prohibited; and

(g) Further requirements to those specified above, shall comply with the technical requirements of OSHA Subpart L-Scaffolds, 1926.452 Additional requirements applicable to specific types of Scaffolds, (b) Tube and coupler Scaffolds.

(3) Fabricated Frame Scaffolds

(a) Frames and panels shall be braced by cross, horizontal, or diagonal braces, or combination thereof, which secure vertical members together laterally. The cross braces shall be of such length as will automatically square and align vertical members so that the erected Scaffold is always plumb, level, and square. All brace

connections shall be secured;

(b) Frames and panels shall be joined together vertically by coupling or stacking pins or equivalent means;

(c) Where uplift can occur, which would displace Scaffold end frames or panels, the frames or panels shall be locked together vertically by pins or equivalent means;

(d) Brackets used to support cantilevered loads shall:

(i) Be seated with side-brackets parallel to the frames and end-brackets at 90 degrees to the frames;

(ii) Not be bent or twisted from these positions; and

(iii) Be used only to support personnel, unless the Scaffold has been designed for other loads.

(e) Further requirements to those specified above, shall comply with the technical requirements of OSHA Subpart L-Scaffolds, 1926.452 Additional requirements applicable to specific types of Scaffolds, (c) Fabricated frame Scaffolds.

6.5.8 Suspended Scaffolds

(1) General

(a) Suspended Scaffolds comprise ~~working~~ Working Pplatforms suspended from upper levels for example with ropes, cables or chains and all necessary support framing, with or without ~~hoisting~~ Hoisting Eequipment; and

(b) Further requirements to those specified above for suspended Scaffolds, shall comply with the technical requirements of OSHA, Subpart L-Scaffolds, 1926.451 [General requirements] and 1926.452 [Additional requirements applicable to specific types of Scaffolds].

(2) The following safety measures shall apply to interior hung Scaffolds which are suspended from roof structures, ceiling beams or other structural members:

(a) Capacity: of interior hung Scaffolds:

(i) Each Scaffold and Scaffold component except as provided in (ii) below shall be capable of supporting, without failure, its own weight and at least 4 times the maximum intended load applied or transmitted to it; and

(ii) Each suspension rope, including connecting hardware, used on non-adjustable suspension Scaffolds shall be capable of supporting, without failure, at least 6 times the maximum intended load applied or transmitted to that rope.

(b) Construction: of interior hung Scaffolds:

(i) Overhead supporting members (roof structure, ceiling beams, or other structural members) shall be inspected and checked for strength before the Scaffold is erected; and

(ii) Suspension ropes and cables shall be connected to the overhead supporting members by shackles, clips, thimbles, or other means that meet equivalent criteria (e.g., strength, durability).

(c) Inspection:

(i) Scaffolds shall be inspected before every work shift, and if any abnormality is found, the work shall be stopped; and

(ii) Wire ropes, chains, hooks and shackles used in the Scaffolds shall be inspected before every work shift in accordance with JSSS 5.4.1 [*Hoisting*

and Rigging Equipment] If any abnormality is found, they shall be replaced.

(d) Prohibited activity

The use of any ladders or stepladders on suspended Scaffolds shall be prohibited.

6.5.9 Mobile Scaffolds

(1) Mobile Scaffolds shall be braced by cross, horizontal, or diagonal braces, or combination thereof, to prevent distortion or collapse of the Scaffold and to secure vertical members together laterally so as to automatically square and align the vertical members. Scaffolds shall be plumb, level, and squared. All brace connections shall be secured.

(2) Scaffold casters and wheels shall be locked with positive wheel and/or wheel and swivel locks, or equivalent means, to prevent movement of the Scaffold while the Scaffold is used in a stationary manner.

(3) Manual force used to move the Scaffold shall be applied as close to the base as practicable, but not more than 1.5 m above the supporting surface.

(4) Power systems used to propel mobile Scaffolds shall be designed for such use. Forklifts, trucks, similar motor vehicles or add-on motors shall not be used to propel Scaffolds unless the Scaffold is designed for such propulsion systems.

(5) Platforms shall not extend outward beyond the base supports of the Scaffold unless outrigger frames or equivalent devices are used to ensure stability.

(6) Where levelling of the Scaffold is necessary, screw jacks or equivalent means shall be used.

(7) Caster stems and wheel stems shall be pinned or otherwise secured in Scaffold legs or adjustment screws.

(8) Safety measures shall be applied before relocating the Scaffolds:

(a) Check the floor surface in advance to prevent the Scaffold from overturning due to any irregularities or obstructions;

(b) Move the Scaffold only after releasing brakes on all castors;

(c) Do not move the Scaffold when any workers or Goods are on the Scaffold;

(d) Ensure that there are no obstructions in the route including any overhead obstructions; and

(e) Do not allow any persons other than workers engaged in the relocation to enter the moving areas of the Scaffold or in the vicinity.

(9) Prohibited activity

Use of the Mobile Scaffolds shall be prohibited for the following:

(a) Use as a support for lifting dropping Goods, debris or waste materials or for dropping same;

(b) Use for the purpose of providing a barrier by covering with sheet material with the risk of collapse due to exposure to wind;

(c) Use for work of grit blasting or water jetting, where the reaction force can destabilise the Scaffold or workers on the Scaffold; and

(d) Use as floor to support mobile ladders, stepladders, trestles.

(10) Further requirements to those specified above shall comply with the technical requirements of OSHA Subpart L-Scaffolds, 1926.452 Additional requirements applicable to specific types of scaffolds, (w) Mobile scaffolds.

6.5.10 Trestle Scaffolds

(1) Trestle Scaffolds can comprise:

(a) Special proprietary type free-standing trestle platforms; or

(b) Scaffold boards or lightweight staging boards supported on stepladders or other tripod type portable ladders.

(2) For requirements on Stepladders refer to JSSS 6.4.4 [*Portable Ladders and Stepladders*].

(3) The following safety measures shall apply:

(a) The distance between the centre lines of the supporting stepladders shall not exceed 1.8m, width of the Scaffold boards shall be at least 45 cm;

(b) Scaffold boards shall not be placed any higher than the second highest rung or step of the ladder supporting the platform;

(c) If timber Scaffold boards are used, the overlap between boards shall be at least 20cm; and

(d) The length of projection of the platform from the end support shall be at least 10cm and not more than one-eighteenth of the length of the boards.

6.5.11 Mobile Elevating Work Platforms

This Clause specifies requirements for mobile elevating work platforms (also known as aerial lifts) including extendable boom platforms, articulating boom platforms, vertical towers and a combination of any such devices.

(1) The following safety measures shall apply for placing and operating mobile elevating work platforms:

(a) Only trained Contractor's Personnel, certified as such by the HSO shall be permitted to operate in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*];

(b) All operation shall be carried out in accordance with the manufacturer's written instructions;

(c) Mobile elevating work platforms shall never be used beyond the load limit recommended~~specified~~ by the manufacturer, which shall also be clearly displayed on the equipment; and

(d) Safety devices shall not be switched off or isolated.

(2) Measures before operation of mobile elevating work platform:

(a) Designate operation as "Dangerous Work" and in accordance with JSSS 2.3 [*Prohibition of Entry - Dangerous Work*], demarcate work areas and take measures to prevent entry to unauthorised personnel;

(b) Place a Spotter, in accordance with JSSS 2.4 [*Spotters, Fragman and the like*] to guide the mobile elevating work platform and, in case of emergency to properly address the situation (e.g. to call help when the operator is incapacitated)~~Place a Spotter to guide the mobile elevating work platform in accordance with JSSS 2.4 [*Spotters, Flagmen and the like*] and who can request help and lower the working Working platform Platform should the operator be incapacitated and if somebody does fall, have an escape or recovery plan in place before hand~~;

~~(b)~~

(c) Determine signals in accordance with JSSS 2.4.5 [*Signals*], and

(d) Determine in advance the appropriate working speed limit for the mobile elevating work platform according to the height of the ~~working~~ Working ~~platform~~ Platform and the length of the boom, etc. and ensure that the operator never drives the equipment in excess of this limit.

(3) Measures at locating mobile elevating work platform:

(a) The parking brakes of vehicle shall be set;

(b) Wheel chocks shall be installed before using the mobile elevating work platforms on an incline, provided they can be safely installed;

(c) When outriggers are used, they shall be positioned on pads or a solid surface; and

(d) Lift controls shall be tested each day prior to use to determine that such controls are in safe working condition.

(4) Measures at operation on mobile elevating work platform:

(a) Workers shall always stand firmly on the floor of the basket/~~working~~ Working ~~platform~~Platform, and shall not sit or climb on the edge of the basket or use planks, ladders, or other devices for a work position;

(b) Workers shall use PPE including PFRS;

(c) Workers shall be prohibited from taking dangerous actions such as moving from the ~~working~~ basket/Working ~~platform~~Platform~~basket~~ to neighbouring structure, standing on and working from handrail;

(d) When the mobile elevating work platform has both platform (upper) and lower controls, the upper controls shall be in or beside the platform within easy reach of the operator. Lower controls shall provide for overriding the upper controls. Controls shall be plainly marked as to their function. Lower level controls shall not be operated unless permission has been obtained from the worker in the lift, except in case of emergency;

(e) When leaving the operating position and when work is stopped the operator of the mobile elevating work platform shall:

(i) Put the ~~working~~ Working P~~p~~latform in the lowest position;

(ii) Stop the prime engine/motor; and

(iii) Apply the parking brake securely and ensure the equipment is securely parked.

(f) Stop work at a height of 2 m or more in case of adverse weather in accordance with JSSS 2.7 [*Adverse Weather Requirements*].

(5) Measures of moving mobile elevating work platform

(a) Mobile elevating work platform shall not be moved when the boom is elevated in a working position with workers in the basket, except for equipment which is specifically designed for this type of operation; and

(b) Before moving the mobile elevating work platform for travel, the boom(s) shall be inspected to see that it is properly cradled and outriggers are in stowed position.

(6) Inspection and maintenance of mobile elevating work platform

(a) Carry out inspection in accordance with JSSS 4.2.1 [*Requirements Generally*]; and

(b) Carry out maintenance, repair and installation/removal of the ~~working~~ Working ~~platform~~ Platform in accordance with JSSS 4.2 [*Inspection, Maintenance and Repair*] and JSSS 4.3 [*Safety Requirements*].

(7) Prohibition of use for other purposes

Mobile elevating work platforms shall not be used for any purpose other than the intended original purpose and for example shall never be used for hoisting loads.

6.6 ELEVATED ACCESS STRUCTURES

6.6.1 General

This Section includes safety measures relating to Elevated Access Structures which act as ~~act as~~ temporary access, parking, working and/or storage areas which also accommodate Contractor's Equipment, Goods and temporary facilities as necessary to permit the construction operations to be performed from these structures on the underlying or adjacent working area(s) within the Site.

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6.6.2 Design and Management Generally

(1) The design, management, provision, safe use and safe removal of Elevated Access Structures shall comply with the requirements of JSSS 6.1.1 [*Design and Provision of Temporary Works Generally*].

(2) For related JSSS requirements, refer to the following and other related parts of JSSS including:

(a) JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*]; and

(b) JSSS 1.37 [*Design and Management of Temporary Works*].

(3) Erection and Removal of Elevated Access Structures

The Contractor shall:

(a) ~~Designate any working areas where any Elevated Access Structures are being erected, altered or removed as Dangerous Areas and e~~Enclose the working area where possible with temporary fences or barriers, prevent entry of any unauthorised personnel or prevent vessels from entering in the case of offshore or marine works and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry - Dangerous Work];*

(b) Use of Measures to prevent Workers, Vehicles, Contractor's Equipment and Goods from falling;

The Contractor shall design and provide suitable measures to prevent workers falling including for example handrails specified in JSSS 2.5.5 [*Handrails*] to the perimeter of Elevated Access Structures ~~to prevent workers from falling~~.

The Contractor shall design and provide suitable measures to the perimeter of Elevated Access Structures prevent Vehicles, Contractor's Equipment and Goods falling including for example steel edge barriers and kerbs.

All edge barriers and kerbs shall be painted in black and yellow bands to show them as a hazard.

(c) Use of Measures to prevent collision with water~~Marine~~ v~~V~~essels;

For offshore work, the Contractor shall provide all necessary warning signs, audible alarms, beacons and lighting and serve all notices to the marine or other relevant authorities as necessary to ensure that all shipping, boats and other vessels are aware of changes to navigation due to the presence of any Elevated Access Structures and that all risk of collision is avoided.

6.6.3 Further Safety Requirements

The Contractor shall take all necessary measures to ensure the safe provision, use and removal of Elevated Access Structures, including but not restricted to the following:

(1) Provide warning notices clearly showing the maximum safe working load in clearly visible locations.

(2) ~~Ensure that the Contractor, together with any other parties considered collectively, NEVER exceed the maximum safe working load.~~Always respect the maximum safe working load, taking account of all the persons/personnel, vehicles, Goods, etc. on the Elevated Access Structures.

(3) Provide any further signs containing user information or other mandatory usage requirements such as speed limits and markings all as necessary to demarcate roadways and walkways, working, storage, parking and other areas.

(4) Designate all work to and on any Elevated Access Structures and during use, as Dangerous Work and take all further measures that are required by JSSS 2.3 [*Prohibition of Entry - Dangerous Work*].

(5) Provide Ww~~w~~alkways in accordance with JSSS 6.4 [*Walkways, Ladders and Stepladders*].

(6) Provide adequate lighting to ensure the safety of Contractor's Equipment, equipment of other parties, vehicles and persons in transit or whilst working.

(7) (for offshore work) Provide rescue and lifesaving equipment to be used in the event that any persons fall into the water, including a rescue boat~~tender~~ and life belts or the like.

(8) Provide PFAS or PFRS to workers where appropriate including those engaged in the construction and removal of the Elevated Access Structures.

(9) Prevent any accident or collision by ensuring that all Contractor's Personnel that may be working on Elevated Access Structures and any Employer's personnel and other persons that may be present on such structures are fully informed about the work that may be in progress from time to time, including transportation and delivery of Goods and of the measures and any precautions that must be complied with.

(10) Provide relevant training in accordance with JSSS 1.20 [*Safety Induction Training*] to ensure the safety of all persons before they commence work on the Elevated Access Structures.

~~(11) Ensure the ongoing compliance with safe working practices through the regular meetings required by JSSS 1.15 [*Contractor's Safety Management Activities*].~~

6.6.4 Inspection and Maintenance

Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the Contractor shall comply with the following:

(1) Every Elevated Access Structure shall be thoroughly examined by the HSO:

(a) Before it is brought into use;

(b) After any substantial alteration or extension;

(c) At least once in every 7 days; and

(d) Whenever it has been exposed to adverse climatic conditions, heavy seas, earthquake or other factors which may have affected its safety.

(2) A written record of the examination and regular inspections and details of any repair measures shall be prepared by the HSO.

(3) The examination and regular inspections shall include:

(a) Check if the Elevated Access Structure is provided and used in accordance with the Method Statement, Safety Plan and its design;

(b) Check items include:

(i) The structural condition of the Elevated Access Structure and of any deterioration, defect, damage or settlement;

(ii) ~~Fall prevention and all other S~~safety ~~requirements and~~ facilities including that for fall prevention are intact and fully operational; and

(iii) All other requirements of this Section are still being complied with.

(4) The Contractor shall carry out all necessary remedial and repair work necessary to rectify any deterioration, defect or damage and shall if necessary stop the use of the Elevated Access Structure until such work has been properly completed, re-inspected and re-certified as “Safe for Use” by the HSO.

6.7 TEMPORARY ELECTRICAL INSTALLATIONS

6.7.1 General

(1) This Section contains safety requirements for the provision, use, relocation, repair and removal of temporary electrical power and lighting installations at the Site.

(2) Although the work in this Section is temporary, it shall be particularly noted that temporary electrical installations shall be designed, installed, inspected, tested, altered and removed by Contractor's Personnel that are qualified electricians, trained and certified for such operations in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*] and that follow strict procedures prepared by the Contractor and specified in the Method Statement and Safety Plan.

(3) The Contractor shall take precautions against the risk of death or injury from electricity during construction work. In particular, when executing refurbishment work in existing buildings where greater risk exists, the Contractor shall locate and indicate the types, positions and routes of all underground and concealed services with clearly visibly markings on ground, floor, wall and ceiling surfaces, and take all actions necessary to ensure construction safety in compliance with JSSS 3.1.2 [*Preparation and Work Planning*].

(4) The temporary electrical installations and all equipment used shall be safe, regularly inspected and properly maintained.

(5) Temporary electrical installations shall be removed immediately upon completion of the work for which they are used.

6.7.2 Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for Temporary Electrical Installations complying with the technical requirements specified in OSHA PART 1926-Safety and Health Regulations for Construction, Subpart K-Electrical; 1926.405 Wiring Methods, Components and Equipment for General Use.

6.7.3 General Safety Requirements

The Contractor shall avoid accidents to workers engaged on electrical works and also those workers who are not electricians but who are carrying out other works, by taking appropriate measures including the following:

(1) Understanding the system

(a) The Contractor shall ensure that Contractor's Personnel responsible for planning, managing or performing any part of the Works fully understand the danger in relation to electrical system on the Site or inside any existing building where any work is to be carried out, to ensure that the integrity of the electrical system is not compromised and all workers remain safe; and

(b) The Contractor shall ensure that relevant parts of existing electrical systems are isolated if the execution of any part of the Works may disturb or damage the existing electrical system and expose persons to electrical danger.

(2) Portable electrical equipment

(a) The Contractor shall ensure that tools, plugs and cables designed for domestic use are not used for construction works unless authorised by the HSO;

(b) The Contractor shall use cordless tools or other tools suitable for the Site conditions;

(c) Where cordless tools are not used, as a first preference the Contractor shall use cord and plug connected tools with a maximum voltage to ground not exceeding 50V/55V; and

(d) Where cordless tools or cord and plug connected tools with power supplies as described in (c) above are not available then, subject to authorisation by the HSO, the Contractor shall select cord and plug connected tools which are operated as stipulated below:

Under any of the following conditions, exposed non-current carrying metal parts of cord and plug connected tools shall be grounded:

(i) If in a hazardous (classified) location stipulated in OSHA §1926.407 Hazardous (classified) locations;

(ii) If operated at over 150V to ground, except for guarded motors and metal frames of electrically heated appliances if the appliance frames are permanently and effectively insulated from ground;

(iii) If the equipment is one of the types listed below:

- Hand held motor-operated tools;
- Cord and plug connected equipment used in damp or wet locations or by workers standing on the ground or on metal floors or working inside of metal tanks or boilers;
- Portable and mobile X-ray and associated equipment;
- Tools likely to be used in wet and/or conductive locations; and
- Portable hand lamps.

(3) Residual current (trip) devices

(a) Ensure that equipment, tools, leads, wires or cables are free of defect or damage, in particular when mains supply is used;

(b) Use residual current (trip) devices (RCD) to detect some faults in the electrical system and rapidly switch off the supply; and

(c) RCDs shall be properly installed and enclosed; properly checked daily; treated with care; kept free of moisture and dirt; and protected against vibration and mechanical damage.

(4) Lighting systems

Protect cabling and bulbs against breakage. If a bulb breaks, the exposed filament may present a hazard. Have a system for checking bulbs regularly to maintain electrical safety and to keep the site well lit.

(5) Temporary electrical systems shall not be used in excess of intended loads or rated capacity whichever is less.

(6) Temporary electrical systems shall not be used for any purpose other than the intended original purpose.

(7) Regularly inspect power tools and take them out of service if they are damaged. Tools should be serviced by qualified electricians; makeshift repairs are prohibited.

6.7.4 Method statement for Temporary Electrical Installations

The Method Statement for temporary electrical installations (required by the Contract and JSSS 1.9 [*Contractor's Method Statements*] shall make reference to the Laws and regulations of the Country and the relevant authority which supplies power to the Contractor in relation with relevant temporary electrical installations and shall show:

(1) Required Standards and voltages of electric wires and cables.

(2) Protective work for electric wires and cables.

(3) Electric diagram.

6.7.5 Responsible Personnel

(1) The Contractor shall post the name and contact information for the person in charge of managing and operating the temporary electrical installation.

(2) All other persons shall be prohibited from operating repairing or interfering with the temporary electrical installation unless otherwise instructed or approved by the HSO or person in change.

6.7.6 Inspection, Maintenance and Repair

The Contractor shall inspect the temporary electric facilities and perform all requisite maintenance, replacement and repair to ensure the continued and safe operation including the following:

(1) Daily inspection

(a) Prepare a daily inspection checklist of the temporary electric installations including the condition of associated buildings, enclosures, fences and the like;

(b) Inspect daily; and

(c) Record the inspection results.

(2) Periodical inspection

(a) Prepare periodical (weekly and monthly) inspection checklist including measurement of insulation resistance values of temporary electric installations and the operating status of protective devices against overcurrent, grounding fault, etc.;

(b) Inspect periodically; and

(c) Record the inspection results.

(3) Maintenance and repair

(a) As a result of inspection, carry any maintenance, repair or replacement if and as necessary;

(b) Stop operation of the temporary electric installations or affected parts thereof and prevent any further operation until maintenance, repair or replacement is completed; and

(c) Reinspect, the temporary electric installations or parts thereof, and after the HSO has declared same as “Safe for Use”, operation can then re-commence.

6.7.7 Safety Measures during the Work

The Contractor shall take the following safety measures when installing, moving, removing, repairing temporary electric facilities.

(1) Cabling/Wiring

(a) Carry out cabling/wiring work so that safety distances between cabling/wiring and any other cabling/wiring, posts, gantries, other structures, buildings, enclosures Contractor’s Equipment, vehicles and persons are maintained;

(b) If appropriate separation distances cannot be maintained, enclose cabling/wiring in insulated ducts, conduit or trunking;

(c) Locate cabling/wiring where it does not obstruct other works; and

(d) Always enclose cabling/wiring in insulated ducts, conduit or trunking in working areas or Operational Areas to avoid any risk of contact, damage or injury.

(2) Switchgear, Panels and Switches

(a) Enclose switchgear, panels and switches in waterproof and lockable metal enclosures to suit the environmental conditions, all of which shall be grounded; and

(b) Fuses and circuit breakers shall be suitable for their use and load capacity.

(3) Power Receiving Equipment and Transformers

(a) Power receiving equipment, transformers and the like, shall be located in securely fenced or enclosed and locked compounds, enclosures or buildings from which entry by unauthorised persons shall be prohibited;

(b) Any work in such areas shall be designated as Dangerous Work and the provisions of JSSS 2.1.5 [*Further Requirements for Dangerous Work*] shall be applied; and

(c) All such places shall be clearly indicated as dangerous no entry areas with clear and obvious signage.

(4) Grounding (earthing)

(a) All temporary electric installations shall be grounded for each part to prevent the risk of electric shock due to electrical leakage; and

(b) Grounding electrodes shall be highly conductive such as copper ~~or steel~~.

(5) Relocation and Repair Work

(a) Relocation and repair work to or any work in the vicinity of temporary electrical installations shall only be performed after the power supply has been turned off, isolation has been confirmed, confirmation that temporary protective casings have been installed over existing cables and no electricity is measured by electricity detection;

(b) When re-energising temporary electric installations during or after any relocation or repair work, the Contractor shall ascertain in advance that there will be ~~is no risk of~~ electric shock to any persons engaged in ~~on or in the vicinity of~~ the relocation or repair work of temporary electrical installations or any work nearby; and

(c) When installation, relocation or repair work of temporary electric installations is completed, the facilities shall be operated only after testing and inspection of the installation by the HSO and after the HSO has declared same as “Safe for Use”.

6.8 ELECTRIC AND GAS WELDING AND CUTTING

6.8.1 General

(1) This Section contains safety requirements for electric and gas, welding and cutting.

(2) Electric and Gas welding and cutting work shall be designated as Dangerous Work and the provisions of JSSS 2.1.5 [*Further Requirements for Dangerous Work*] shall be applied.

(3) Electric and Gas welding and cutting work shall only be performed, inspected and tested by Contractor's Personnel that are qualified welders, trained and certified for such operations in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*] and that follow strict procedures prepared by the Contractor and specified in the Method Statement and Safety Plan.

6.8.2 Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for Electric and Gas Welding and Cutting complying with the technical requirements specified in the following standards:

(1) OSHA PART 1926-Safety and Health Regulations for Construction, Subpart J - Welding and Cutting, 1926.351 Arc welding and cutting.

(2) OSHA PART 1926-Safety and Health Regulations for Construction, Subpart J- Welding and Cutting, 1926.351 Gas welding and cutting.

6.8.3 Electric Welding and Cutting

The Contractor shall take the following measures for the electric welding and cutting:

(1) Check measures before operation:

(a) Automatic voltage reduction device for reducing no load voltage to prevent the shock hazard, is fitted and is functioning properly;

(b) Frame of welding machine is properly grounded;

(c) The ground resistance shall be sufficiently low for the proper function of RCD.

~~(b)~~(d) Grounding conductor is installed properly and working;

~~(c)~~(e) There is no damage to welding cables;

~~(d)~~(f) There is no damage to electrode holder, insulation of ground clamp or cable connections; and

~~(e)~~(g) Carry out all such further checks that are required by the manufacturer's official maintenance and repair manual.

If any items are found to be missing or defective, the Contractor shall prohibit use until it has been repaired or replaced and the equipment has been inspected, tested and certified as "Safe for Use" by HSO, before it can be used.

(2) Measures to be adopted during operation:

(a) Prevent ~~the occurrence of~~ stray currents by securely fixing the ground cable with a ground clamp to a suitable ground, close to the work location;

(b) Use cables of the correct type and size and never use alternatives such as tools or reinforcing bars;

(c) When not working, remove electrode from holder and turn off the welding machine;

(d) Weld only in suitable environment and climatic conditions. Stop working outdoors

during rainfall and take measures to prevent the welding machine, cables and accessories from getting wet;

(e) If any worker receives an electric shock, the Contractor shall stop the work immediately, identify the cause, prohibit use of the equipment until it has been repaired or replaced and the equipment has been inspected, tested and certified as "Safe for Use" by HSO, before it can be used;

(f) Ensure that workers wear appropriate PPE including personal face protectors for welding and protective gloves as specified in JSSS 2.9 [*PPE and First Aid*]; and

(g) Instruct all workers not to look directly at the electric arc with their naked eyes.

(3) Periodical inspection of welding machines and welding equipment:

(a) Electric welding and cutting equipment shall be inspected and tested periodically in accordance with JSSS 4.2 [*Inspection, Maintenance and Repair*] and JSSS 4.3 [*Safety Requirements*] and

(b) The voltage reduction device shall be regularly inspected and tested at least once every six months.

~~(b)~~

6.8.4 Gas Welding and Cutting

The Contractor shall take the following measures for gas welding and cutting:

(1) Check measures before operation:

(a) Flashback arrestor to stop flame back-up into the equipment or gas supply line is installed;

(b) There is no damage to gas cylinders, regulators, flashback arrestor, hose bands, hoses, blow pipes, tip nozzles, and other accessories and equipment;

(c) Gas cylinders, regulators and caps and other relevant accessories and equipment have been inspected periodically and certified by HSO as "Safe for Use"; and

~~(f)~~(h) Carry out all such further checks that are required by the manufacturer's official maintenance and repair manual.

If any items are found to be missing or defective, the Contractor shall prohibit use until it has been repaired or replaced and the equipment has been inspected, tested and certified as "Safe for Use" by HSO, before it can be used.

(2) Handling of gas welding and cutting equipment

~~Welders engaged in gas cutting and welding shall be aware of the following requirements:~~

(a) Gas hoses and gas weld sets, shall not be damaged or worn to prevent ~~and have no risk of~~ gas leakage;

(b) Gas weld sets shall be turned off when not in use and shall not be left lying around;

(c) Gas pressure regulators shall not be operated during cutting or welding operation;

(d) Connections between cylinders, gas hoses and gas weld sets shall be securely tightened with appropriate connectors;

(e) When tip nozzle overheats, flashback is likely to occur, therefore interrupt continuous working, from time to time and cool the nozzle by submerging in water whilst discharging oxygen at low pressure; and

(f) When finishing or interrupting work, completely close the container valves and vent gas in regulators.

コメントの追加 [J66]: 不要。6.8.4 に Contractor を主語にした一文がある。Welder に主語を転換する必要はない。

(3) Handling of gas cylinders

Workers ~~and workers~~ shall be trained to handle gas cylinders so that they are aware of the following requirements:

(a) Not to place gas cylinders:

(i) Where there is insufficient ventilation;

(ii) Near to fires, flames, heat sources, electrical sparks or grinding sparks; and

(iii) Near to Dangerous Goods or Hazardous Substances or near to Hazardous Areas.

(b) Handle gas cylinders with care and do not drop, throw or mishandle;

(c) Keep cylinders cool by shading and do not expose to direct sunlight;

(d) Keep cylinders standing ~~Position~~ during storage and use ~~so that there is no risk of falling~~;

(e) Seal cylinders when transporting;

(f) Place compressed gas cylinders upright at all times except while cylinders are actually being hoisted or carried;

(g) Not to place gas cylinders in the vicinity of lightning conductors or grounding rods for electrical equipment;

(h) Mark all gas cylinders as either full or empty and separate them from each other in storage and during use; and

(i) When there is a risk of freezing, do not place gas cylinders in wet or humid places. When valves of cylinder or regulating valves freeze, thaw them out with hot water, do not flame or direct fire.

(4) Safety measures for gas welding and cutting work:

(a) Ensure that all internal and external work areas are fully ventilated;

(b) When checking for gas leakage from the gas welding or cutting equipment, use a liquid detergent or similar, never use flames or fire;

(c) Provide adequate fire extinguishing equipment near the working place, always maintained and certified, suitably labelled, available and positioned so that it can be used immediately when necessary;

(d) Remove oil and dust adhering to the valve of gas cylinders;

(e) Ignition and digestion shall be accomplished only with oxygen supply valve closed;

(f) Ensure that workers wear appropriate PPE including personal face protectors for welding and protective gloves as specified in JSSS 2.9 [*PPE and First Aid*]; and

(g) Instruct all workers not to look directly at the weld with their naked eyes.

(5) Periodical inspection of gas welding and cutting equipment.

Gas welding and cutting equipment shall be inspected and tested periodically in accordance with JSSS 4.2 [*Inspection, Maintenance and Repair*] and JSSS 4.3 [*Safety Requirements*].

6.8.5 Fire Prevention

The Contractor shall take all necessary measures to prevent fires caused by welding and cutting works, including:

(1) When welding or cutting work is carried out on/in containers previously filled with Dangerous Goods or Hazardous Material, the containers shall be thoroughly cleaned so that they are completely free from such Dangerous Goods or Hazardous Material before starting work.

(2) When welding or cutting work is carried out at a place where there is a risk of causing fire either to adjacent buildings or to Contractor's Equipment, Goods, debris, waste or other materials, then fire prevention measures shall be adopted. This may include moving all such Contractor's Equipment, Goods, debris, waste or other materials, from the working area and taking other protective measures.

(3) Welding or cutting work shall not be conducted near Dangerous Goods or Hazardous Substances or in or near to Hazardous Areas.

(4) A sufficient number of fire extinguishers of appropriate types shall be provided, near the working place, always maintained and certified, suitably labelled, available and positioned so that they can be used immediately when necessary.

(5) Spotter(s) shall be provided at areas where welding or cutting work is taking place when there is risk of fire by the heat transmitted or sparks of welding or cutting, getting into walls, floors, ceilings and the like.

(6) When welding, cutting, or heating work is performed on walls, floors, and ceilings, since direct penetration of sparks or heat transfer may introduce a fire hazard to an adjacent area, the same precautions mentioned in this JSSS 6.8.5 shall be taken on the opposite side as are taken on the side on which the welding work is being performed.

CHAPTER 7: EXCAVATION WORKS

7.1 GENERAL

7.1.1 Scope

(1) This Chapter specifies the safety requirements for excavation works except for tunnelling which include:

(a) Open-cut and all other types of surface excavation;

(b) Pits, trenches, basements and all other types of structural excavation;

(c) Excavation using all methods such as manual excavation and machine excavation;

(d) Excavation by Blasting (hereinafter referred to as “Blasting Works”);

(e) All associated embankment filling, backfilling and disposal; and

(f) Earthwork Support.

and which are hereinafter collectively referred to as “Excavation Works”.

~~(2) Excavation in tunnelling is not included.~~

~~(3)~~(2) General requirements for example for Contractor’s Equipment, Temporary Works and other related works all which apply to the work in this Chapter, are included in other Chapters of JSSS.

Additional particular requirements are contained in this Chapter.

7.1.2 Monitoring of Excavation Works and Surroundings

(1) The Contractor shall monitor the Excavation Works and surroundings, to demonstrate that the Excavation Works are performing safely, to the designed limits and for the intended purpose.

(2) For more details, refer to JSSS 2.1.7 [*Monitoring and Records*].

7.2 PARTICULAR SAFETY MEASURES

7.2.1 General

(1) The Contractor shall plan all Excavation Works so that they can be executed in a safe and methodical manner.

(2) Unless otherwise specified in the Particular Safety Specification, the Contractor shall be responsible for choosing manual or machine excavation, selecting types of Contractor’s Equipment, types of Temporary Works, Earthwork Support, spoil removal, storage and handling, controlling ground and surface water, forming embankments and cuttings and the like~~, in conformity with GC 4.10 [*Site Data*]~~.

(3) Sloping sides and benching to sides of excavations shall comply with the technical requirements of OSHA Subpart P—Excavations §1926.652 Requirements for protective systems, (b) only, dependant on the dimensional constraints of the Site and the nature of the soil, hydraulic and geological conditions.

(4) The Contractor shall be responsible for preserving the structural integrity of all excavated sides ~~and excavations~~ and shall provide whatever Earthwork Support may be necessary to achieve this, in accordance with the requirements of JSSS 6.2 [*Earthwork Support*].

(5) The Contractor shall execute all Excavation Works and associated filling, backfilling and Earthwork Support without weakening any ground or causing any damage to ~~any buildings, structures and o~~Other Pproperties~~, paved areas, roads, footpaths, fences, railways, waterways, drainage, utilities or any other property on the Site or outside the Site (collectively referred to in this Chapter as “other properties”)~~.

コメントの追加 [SN67]: Moved to the text above

コメントの追加 [YM68]: オープン掘削を前提としているので、掘削した側面について言及するということだと思いますが、その際 structural integrity という言い方でよいものでしょうか。ご検討ください。

The Contractor shall also ensure the safety of all persons, whilst they are working in, under or adjacent to any excavation on or outside the Site.

The Contractor shall take all necessary measures to prevent the occurrence of any such weakening or damage ~~by~~to ~~other~~ Other P~~p~~roperties and obtain the prior consent of the Engineer to such measures before commencing relevant parts of the Excavation Works.

(6) If loose rock, boulders, trees and the like, are positioned above working areas and where there is any risk that these may pose a danger to workers, ~~unless otherwise instructed by the Engineer,~~ the Contractor~~HSO~~ shall prohibit workers from entering the working areas and take following measures as appropriate:~~issue appropriate instructions including for example to:~~

(a) Provide protective overhead safety barriers or safety nets;

(b) Carefully remove loose rocks; and

(c) Provide (or improve existing) Earthwork Support to unstable areas.

7.2.2 Safety Measures before Commencing Excavation Works

(1) The HSO shall inspect the Excavation Works area and surrounding areas before starting work each day and after adverse climatic conditions or earthquake as described in JSSS: 2.7 [*Adverse Weather Requirements*]. The inspection shall include the following areas and items:

(a) Potentially unsafe areas where there may be any risk of landslide;

(b) Loose rock or boulders which may be at risk of falling;

(c) Cracks in the Excavation Works area and the surrounding area;

(d) Changes in ground water level, surface or any spring water; and

(e) Deleterious effect due to freezing conditions.

(2) As a consequence of such inspections if the HSO identifies any outstanding risks, the HSO shall~~may~~ prohibit the continuation of any affected work, take necessary corrective measures and make any necessary amendment to the Safety Plan and instruct all Contractor's Personnel associated with such affected work of any revised safety measures before work is allowed to commence and continue in order to ensure their continued safety.

(3) Install facilities such as stairs and ramps as means of access or egress from the excavation site in accordance with JSSS 6.4.3 [*Vertical Access*].

(4) Provide support or protection for the underground services appropriately in accordance with JSSS Chapter 3 [*Existing Underground, Concealed and Overhead Services*], and take measures, according to the situation, such as indicating clearly the location and precautions of the underground service and providing protective fences for the services.

(5) Prevent workers and construction equipment/transport vehicles from falling at the excavation site, in accordance with JSSS 2.3 [*Prohibition of Entry-Dangerous Work*], install all necessary entry prevention facilities including fences, temporary enclosures, warning flags, "no entry" signs and the like and placing Spotters.

(6) Take the following measures when there is a risk of danger to third parties, workers, construction equipment, etc. by the fall of excavated soil/rock into the lower parts (bottom) of the excavation site;

(a) Identify dangerous locations, install entry prevention facilities such as fences, temporary enclosures, warning signs, etc. in accordance with JSSS 2.3 [Prohibition of Entry]; and

(b) Install protective fences that can catch falling rocks, etc.

(7) Preventive measures against falling rocks

(a) To protect workers from the dangers of falling of loose rocks and soils from the excavated surface, remove the loose rocks, etc. and take appropriate protective measures

~~(a)~~(b) When there is a risk of falling of loose rocks/soils due to the excavation, take measures such as provision of earth retaining and protective net beforehand, and prohibiting workers from entering in the excavation site.

コメントの追加 **[YM69]:** 前回の版であったものを復活させてください。

7.2.3 Safety Measures during Excavation Works

During the Excavation Works, the Contractor shall:

(1) Not place ~~excavated~~ spoil, filling or Contractor's Equipment near the vertical edge of excavated surfaces.

(2) Stop the Excavation Works where a sign of ground collapse is identified~~possible~~ during excavation, evacuate all Contractor's Personnel, implement all necessary safety measures, prohibit Contractor's Personnel from recommencing work until all safety measures have been taken.

(3) Backfill any temporary excavation area as soon as possible after the relevant work is completed.

~~(4) Backfill and compact excavated areas that require such backfill as soon as possible after the Permanent Works are completed.~~

~~(5)~~(4) For places where open Excavation Works are performed, maintain the necessary illuminance to perform the work safely.

7.3 MANUAL EXCAVATION WORKS

7.3.1 General

During manual Excavation Works, the Contractor shall:

(1) Not undermine any excavation under and beyond the vertical cutting face.

(2) Not excavate under existing foundations.

(3) Maintain sufficient distance between workers.

(4) When breaking or removing loose rock, pay attention to the stability of the rock and the direction of its fall.

(5) When using a lever for removing rock, select equipment that has appropriate length and strength for the work.

7.4 MECHANICAL EXCAVATION WORK

Refer to JSSS Chapter 4 [*Contractor's Equipment*].

7.5 TRENCHES, PITS AND OTHER TYPES OF STRUCTURAL EXCAVATION

7.5.1 General

The Contractor shall provide Earthwork Support in accordance with JSSS ~~Section~~ 6.2 [*Earthwork Support*] to prevent any danger to workers due to the collapse of excavated surfaces during the excavation of trenches, pits and other types of structural excavation.

7.5.2 Safety Measures during Structural Excavation

(1) Materials and equipment to be used for Earthwork Support shall be appropriate for the width and depth of the excavation and free from damage or defects that might impair their proper function.

(2) Workers shall not be allowed to enter any excavation until Earthwork Support is installed prior to the work.

(3) Excavation to a level greater than 60cm below the planned ~~the~~ bottom level of support when the Earthwork Support itself is not yet installed shall not be allowed.

(4) If temporary removal of individual members of the Earthwork Support is necessary, safety measures shall be taken to ensure the safety of workers, such as installing temporary members to hold the loads imposed on the system.

(5) When removing Earthwork Support, the Contractor shall not allow anyone other than the workers engaged in the removal work to enter the area and the vicinity.

(6) The Contractor shall perform backfilling of any excavation in parallel with the removal of the Earthwork Support.

7.6 BLASTING WORKS

7.6.1 Scope

(1) This Section specifies safety measures for Blasting Works generally for the removal of rock that cannot be undertaken using conventional excavation techniques.

(2) Blasting Works for tunnelling is not included in the scope of this Chapter. ~~Any such work shall be performed in accordance with the Particular Safety Specification.~~

7.6.2 General Blasting Requirements

(1) Blasting shall only be permitted to be performed by the Contractor:

(a) When it is safe to do so and when there is no reasonably identifiable risk of injury or damage being caused to persons or property within or outside the Site;

(b) Where it is not specifically prohibited~~allowed or required~~ by the Particular Safety Specification; and

(c) ~~During the execution of the Works after~~ When the Contractor has received the Engineer's approval or instruction.

(2) Blasting when approved, shall only be permitted at times which have been predetermined and agreed with the Engineer and any relevant authority.

(3) The Blasting Works plan shall be described in the relevant Method Statement.

(4) This Section applies particularly where there may be any risk of injury or damage to persons and property from flying debris within or outside the Site.

7.6.3 Blasting Noise

Noise levels, measured in areas close to the Exclusion Zone and in areas accessible to other workers or the public shall not exceed a sound pressure level of 85 dB and/or a peak sound level of 110 dB.

Noise levels measured at the boundary of the Site shall not exceed a sound pressure level of 85 dB and/or a peak sound level of 110 dB.

7.6.4 Definitions

Definitions of terms for the purpose of this Chapter are as follows.

(1) "**Blasting**" means blowing-up or breaking apart solid rock with the use of Explosives.

(2) "**Explosives**" means any substance or mixture of substances that is manufactured to produce an explosive effect and which term includes any explosion explosive, Blasting agent and Blasting supplies such as detonators, cords and detonating equipment.

(3) "**Exclusion Zone**" means an area from which all unauthorised Contractor's Personnel, unauthorised Employer's Personnel and any other unauthorised persons or the general public are prohibited to enter due to the risk of their being affected by the Blasting Works. Unauthorised personnel in this context shall have the same meaning as that stated in

コメントの追加 [J70]: modified as 6.2.4(4)

コメントの追加 [J71]: 音量のレベルと、サイト内で規制をかけるということについては、参照文献を確認させてください。dB の表現（dBA とするか否か）についてもそれに合わせて確認願います。

コメントの追加 [SN72]: 他章では、Scope, Definitions, Compliance Standards の順で章の冒頭に記載されているので、7.6.4 と 7.6.5 を同様の順番にして章の冒頭に移してください。

コメントの追加 [JICA73]: 2.6.1 (3)でも一般用語で別の意味で使用しているので、ここは Blasting Exclusion Zone とかにした方が良いように思います　(OKA)

JSSS~~Section 2.3 [*Prohibition of Entry – Dangerous Work*] Clause~~ 2.3.1 (3).

7.6.5 Compliance Standards

(1) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for Blasting Works complying with the technical requirements specified in BS 5607: Code of Practice for the Safe Use of Explosives in the Construction Industry.

(2) The Contractor shall obtain the necessary permits, licenses or approvals for Blasting W~~w~~orks and the handling and storage of Explosives associated therewith. The Employer, at the request of the Contractor, shall provide such reasonable assistance to allow the Contractor to obtain properly such permits, licenses or approvals.

7.6.6 Personnel for Blasting Works

(1) Further to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*], the Contractor shall assign the following personnel for Blasting Works:

(a) Explosives engineer; and

(b) Shotfirer(s).

(2) Responsibilities and requirement of personnel for Blasting Works

(a) The Explosives engineer shall plan the Blasting Works, lead the Blasting Works at the Site and perform the safety management of the Blasting Works; and

(b) Shotfirer(s) shall perform safe handling~~keeping~~, transportation and storage of Explosives, and perform Blasting Works and site safety management.

(3) Safety education and guidance

Further to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*], the Contractor shall ensure that the Explosives engineer and shotfirer(s) have sufficient knowledge of and are able to comply with the following:

(a) Nature of hazards associated with Blasting;

(b) Unsafe conditions and conduct in performing Blasting Works;

(c) Procedures for Blasting Works;

(d) Evacuation and return procedures for any evacuated workers and personnel;

(e) Safety measures when misfiring of Explosives occurs; and

(f) Emergency ~~response~~ Response *(actions).*

7.6.7 Blasting Safety Plan

The Contractor shall prepare a Blasting Safety Plan describing all required safety measures for Blasting Works in addition to the items prescribed in JSSS 1.7 [*Contractor's Safety Plans*] and including the following:

(1) Risk analysis and countermeasures.

(2) Safety measures for transportation, safekeeping, use and disposal of Explosives.

(3) Safety measures for Contractor's Personnel, Employer's Personnel and any other persons, the general public, neighbouring residents and building owners on or adjacent to the Site and who may be affected by the Blasting Works (hereinafter collectively referred to as "persons affected by the Blasting Works" in this Section).

(4) Determination of Exclusion Zone.

(5) Identification of affected areas, buildings, structures and property.

(6) Environmental and health compliance requirements including vibration, noise, fire, and the like, required by Laws and the Contract.

コメントの追加 [J74]: Laws of the Country?

(7) Environmental monitoring plan and methods to record the impact of Blasting on affected buildings, structures and property.

(8) Trial Blasting.

(9) Identification of the Explosives engineer and shotfirers to distinguish from other workers.

(10) Placement of Spotters.

(11) Method of notification of the start date and time of Blasting Wworks and the serving of notice immediately before commencement of Blasting Works to other persons affected by the Blasting Works.

(12) Evacuation method of all personnel from the Exclusion Zone before Blasting.

(13) Warning system at the time of Blasting.

(14) Procedures and methods for dealing with misfired Explosives (The plan for the treatment procedures for misfired Explosives shall be prepared by reference to BS 5607: Clause 10.5 Misfires.

(15) List of legal and administrative records.

7.6.8 Risk Prevention of Workers and Neighbouring Residents

(1) Notice of Blasting

The Contractor shall notify all persons affected by the Blasting Works~~.~~ of the planned schedule and start dates and times for Blasting Works. Such information shall be updated as necessary, immediately before the Blasting Works commence.

(2) Risk Prevention Measures

The Contractor shall take all necessary measures to prevent any injury or damage to all persons affected by the Blasting Works, including the following:

(a) Prohibition of overcharging with Explosives more than that specified in the Method Statement prepared based upon the trial Blasting;

(b) Prevention of scattering of flying rock and other debris;

(c) Prevention of collapse of surrounding rocks or ground areas;

(d) Demarcate the Exclusion Zone for Blasting Works and take necessary measures to prohibit any unauthorized persons ~~who may be affected by the Blasting Wworks~~ from entering the Exclusion Zone by a system of signs, signals and Spotters in accordance with BS 5607: Clause 7.4.2 [Blast warning procedures] including the following:

(i) Provide audible warning sirens to warn of impending, current and completed Blasting operations; and

(ii) Place bulletin boards showing the Blasting time, siren code and other precautions at the boundary of the Dangerous Work area.

(e) Establish evacuation requirements, routes and assembly areas and inform all persons affected by the Blasting Works;

(f) Perform firing only after the Spotters have confirmed that all persons affected by the Blasting Works have been evacuated;

(g) Provide communication equipment between the shotfirer and the Spotter, maintain and test the equipment;

(h) Prohibit bringing into the Blasting areas any mobile phone that may affect adversely the electric detonator; and

(i) Unless otherwise specified in the Particular Safety Specification, perform Blasting Works only during the daytime.

7.6.9 Handling and Storing of Explosives

(1) Storage of Explosives

(a) The Explosive store to be constructed at the Site shall be a secure, substantial and fireproof building, environmentally controlled, locked, guarded and protected at all times and in accordance with the Laws of the Country;

(b) Appropriate numbers and types of personnel shall be assigned by the Contractor for safekeeping and security of the stored Explosives and any other materials;

(c) The Contractor shall maintain records of the types and quantities of all Explosives received and issued at the store, listing the date and time of receipt and issue and the names of all personnel concerned; and

(d) The Contractor shall submit the records to the Engineer when the Engineer requests.

For other storage requirements, the Contractor shall take necessary measures complying with the technical requirements specified in ~~comply with~~ BS 5607: Clause 9.3 [Storage].

コメントの追加 [JICA75]: 例えば 2.5 などとの表現上の横並びを取りました。

(2) Transportation of Explosives

For transportation requirements, the Contractor shall take necessary measures complying with the technical requirements specified in ~~comply with~~ BS 5607: Clause 9.4 [Transport of Explosives on Site].

コメントの追加 [JICA76]: 同上

(3) Quantity of Explosives at the Blasting site

(a) No Explosives shall be stored at the Blasting site;

~~(a)~~(b) The quantity of Explosives to be transported from store to be Blasting site shall be limited to the estimated quantity of consumption for the Blasting； and

~~(b)~~(c) Explosives not used on the day shall be returned to the Explosives store.

(4) Handling of Explosives

(a) Explosives shall be handled with extreme care ensuring that they are not hit, thrown or dropped;

(b) Containers for Explosives shall be solidly constructed from timber or non-conducting material and metals such as iron or foil must not be used on inner surfaces;

(c) Explosive and detonators shall be separately stored in lockable containers;

(d) The containers for Explosives shall protect against water ingress, impact damage; and

(e) Smoking, use of matches, lighters, flames, sparks and the like shall be prohibited in areas where Explosives are being transported, stored and handled, notice boards and warning signs shall be placed in suitable positions.

(5) Records of Blasting and Explosives

(a) The Shotfirer shall prepare daily work records showing the date and time of each Blasting operation, quantity of Explosives received, consumed, misfired and remaining, number of blast holes, charging method for the Blasting and treatment of misfired Explosives;

(b) The Explosives engineer shall check and countersign the Blasting Works records; and

(c) The Contractor shall submit the records to the Engineer when the Engineer requests.

(6) Notice to the Engineer

The Contractor shall notify the Engineer in writing as follows:

(a) Notification of d~~D~~elivery of Explosives to the store and from the store to the Site, shall each be given to the Engineer by no later than noon on the day preceding the scheduled date of the arrival of Explosives at the store and the delivery to the Site;

(b) Notification of intended Blasting Works shall be given to the Engineer by no later than noon on the day preceding the scheduled date of the Blasting operation; and

(c) Notification of the schedule for the following week's Blasting shall be given to the Engineer by no later than Friday morning of the preceding week.

7.6.10 Trial Blasting

The Contractor shall perform trial Blasting in accordance with the Blasting Safety Plan provided in JSSS 7.6.7 [*Blasting Safety Plan*] for the following purposes, and modify the said Blasting Safety Plan according to the results of the trial Blasting:

(1) Confirm the characteristics of rock and topography at the Blasting site that will affect the Blasting operations.

(2) Confirm the suitability of the planned Blasting method, Explosives amount, and scattering prevention and other protection measures.

(3) Confirm the safety of all persons affected by the Blasting Works.

(4) Confirm that the Contractor's criteria are adequate for the purpose of JSSS 7.6.11 [*Monitoring Impact of Blasting Works on Other Properties*].

The Contractor shall submit the trial Blasting reports with any consequent changes to the Blasting Safety Plan to the Engineer before proceeding with the Blasting Works.

7.6.11 Monitoring Impact of Blasting Works on Other Properties

The Contractor shall comply with the requirements of JSSS 7.1.2 [*Monitoring of Excavation Works and Surroundings*].

7.6.12 Particular Safety Measures for Blasting Works

(1) Identification of Blasting workers

Provide clear visible identification mark, uniforms or marked safety helmets to distinguish the Explosives engineer and shotfirer(s) engaged in Blasting Works from other workers.

(2) Drilling Work

(a) No drilling shall be allowed in the hole formed for previous Blasting; and

(b) If misfired explosive is found during the drilling operation, the drilling shall be stopped and the misfired ~~explosive~~ Explosive shall be treated in accordance with the procedures planned in JSSS 7.6.7 [*Blasting Safety Plan*] and JSSS 7.6.13 [*Measures after Blasting*], (2) [*Treatment of misfired Explosives*].

(3) Explosives Charging

(a) Drilling operations shall not be permitted during charging of Explosives;

(b) Before charging, thoroughly clean the holes and do not leave any dust or debris; and

(c) Shock and friction such as the following, which can cause accidental initiation of the charges, shall be avoided:

(i) the over-vigorous use of stemming rods to force ~~explosives~~ Explosives into a shot hole;

(ii) the use of drill rods or other metal tools in a shot hole containing ~~explosives~~Explosives;

(iii) vehicles running over ~~explosives~~ Explosives and other hazards involving impact or concussion; and

~~(iv) shock tube detonators being initiated when subjected to "snap, slap and shoot".~~

For other safety measures for charging work, the Contractor shall comply with BS 5607: Clause 10 [Safety when using Explosives].

(4) Handling Detonators

(a) Measures for Blasting using electric detonators:

(i) Make sure electric detonator's leg wires shall be kept short-circuited until they are connected into the circuit for firing;

(ii) Check if shotfiring cables are not cut or damaged;

(iii) Make sure electric detonators shall be kept away from electric lighting supplies, power supplies and other electrical sources that may cause electric leakage;

(iv) Check if there are no missing or wrong wiring connections or mis-connection with previous blast wires;

(v) Make sure there are no stray electric currents;

(vi) Do not use electric detonators if there is any danger of electrical interference for example from radio-frequency radiation near radio communication facility or radar; and

(vii) Install a lightning detector near the Blasting area, stop Blasting Works when there is a risk of lightning strike, and evacuate workers to a safe place.

For other safety matters for Blasting with electric detonator, the Contractor shall comply with BS 5607: Clause 10.4.3 [*Electric detonators*].

(b) Measures for Blasting using non-electric detonators:

(i) Do not cut or damage the shock tube; and

(ii) Before firing, check the connections visually and make sure that there are no missing or previous wiring connections or wrong wiring connections.

(5) Measures in Ignition:

(a) The connection between the shotfiring apparatus and shotfiring cable shall be made just before ignition;

(b) Ignition shall be made at a safe place isolated and protected according to the degree of the blast; and

(c) The handle shall be removed from the shotfiring apparatus except when igniting.

コメントの追加 [JICA77]: 意味が分からない。BS 5607 10.2 g)から来ているがここでは注釈がついているから分かるレベル。削除しては？ (OKA)

7.6.13 Measures after Blasting

(1) Confirmation of safety of Blasting area after Blasting:

(a) No persons other than the shotfirer shall enter the Blasting site or its vicinity until the shotfirer has inspected the area and confirmed that it is safe to re-enter; and

(b) The shotfirer shall inspect the area and surrounding area of the Blasting site to check that there is no danger of falling or collapsing of ground and rocks or misfired Explosives.

(2) Treatment of misfired Explosives

If, after ignition, the loaded Explosives did not explode, or if it is difficult to confirm the explosion, the misfired Explosive shall be treated in accordance with the treatment of misfired Explosives in the Blasting Safety Plan, and BS 5607: Clause 10.5 [Misfires] including the following:

(a) Procedure of treatment of misfired Explosives

The following treatment procedure of misfired Explosives shall be taken:

(i) Immediate remedial action;

(ii) Delayed remedial action;

(iii) Further attempt at detonation; and

(iv) Inspection to confirm complete detonation.

The details of the above actions are stipulated in succeeding (b) to (d).

(b) Immediate remedial action

The following initial actions shall be taken by the shotfirer:

(i) Prohibit anyone other than the shotfirer and other authorized personnel from entering the Blasting site;

(ii) Entry to the Blasting site shall only be permitted after the elapsed time from the occurrence of misfire as specified in the Blasting Safety Plan;

(iii) Disconnect from the shotfiring apparatus any removable handle or key and the shotfiring cable, and short-circuit or ground the bare wires together;

(iv) When safe to do so, examine the cable and connections for any defects, and remedy any defect so found;

(v) Make a further attempt to fire the shot;

(vi) Report to the explosive engineer for further instructions;

(vii) Do not collect any exposed ~~explosives~~ Explosives before further action is taken;

(viii) Do not allow drilling or any other site work to be carried out in the vicinity of the misfire until the misfire has been remedied, unless this is directly involved in the treatment of the misfire; and

(ix) Other actions specified in BS 5607: Clause 10.5.4.1 [Initial actions].

After the initial actions, the following initial remedial actions shall be taken by the shotfirer:

(i) When safe to do so, examine the cable and connections for any defects, and remedy any defect so found; and

(ii) Make a further attempt to fire the shot.

(c) Delayed remedial action and further attempt at detonation:

(i) After the immediate remedial action, when necessary, the delayed remedial action and further attempt at detonation shall be taken.

(ii) The delayed remedial action and further attempt at detonation should be safe removal of the stemming to allow re-priming, or drilling and firing relieving holes placed so as to work away the rock surrounding the stemming and charge of the misfired shot holes.

(iii) The action and attempt shall be taken in accordance with the Blasting Safety Plan, and BS 5607: Clauses 10.5.4.2 [Written instructions], 10.5.4.3 [Attempts to re-fire], 10.5.4.4 [Drilling relieving holes] and 10.5.5 [Drilling relieving holes].

(d) Inspection to confirm complete detonation

After further attempt at detonation, inspection shall be made to confirm complete detonation. If any non or partial detonation is found, remedial measures shall be taken according to Figure-1 Procedure to remedy misfires in BS 5607: Clause 10.5.1 [General].

(e) Take appropriate steps to prevent theft of Explosives and detonators or their initiation by an unauthorised person; and

(f) The Contractor shall promptly notify the Engineer of any misfire event and the remedial actions.

CHAPTER 8: FOUNDATION PILING WORKS

8.1 GENERAL

8.1.1 Scope

(1) This Chapter specifies the safety requirements for piling works which include:

(a) Driven Piling;

(b) Cast in place Piling; and

(c) Hand-Dug Piling

and which are hereinafter collectively referred to as "Foundation Piling Works".

(2) General requirements ~~for example~~ for Contractor's Equipment, Temporary Works and other related works all which apply to the work in this Chapter, are included in other Chapters of JSSS.

Additional particular requirements are contained in this Chapter.

8.2 PARTICULAR SAFETY MEASURES

8.2.1 General

(1) Foundation Piling Works and all operations connected therewith shall be designated as Dangerous Work and the Contractor shall enclose the working area with temporary fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry - Dangerous Work*].

(2) Unless otherwise specified in the Contract~~Particular Safety Specification~~, the Contractor shall be responsible for selecting methods of working and types of Contractor's Equipment and Temporary Works suitable for the purpose in conformity with GC 4.10 [*Site Data*].

(3) In accordance with JSSS 6.2 [*Earthwork Support*] the Contractor shall be responsible for maintaining the structural integrity of the sides of all excavated or drilled pile excavations and shall provide whatever temporary or permanent Earthwork Support that may be necessary to achieve this.

(4) The Contractor shall execute all Piling Works without weakening any ground or causing any damage to ~~any buildings, structures and o~~Other P~~p~~roperties~~, paved areas, roads, footpaths, fences, railways, waterways, drainage, utilities or any other property on the Site or outside the Site (collectively referred to in this Chapter as "other properties")~~.

(5) The Contractor shall also ensure the safety of all persons, whilst they are working in, under or adjacent to any piling excavation on or outside the Site.

(6) The Contractor shall take all necessary measures to prevent the occurrence of any such weakening or damage to ~~other~~ Other ~~p~~Properties and obtain the prior consent of the Engineer to such measures before commencing relevant parts of the Foundation Piling Works.

~~Unless otherwise specified in the Particular Safety Specification,~~ The Contractor shall take further ~~such~~ measures to provide ~~shall include design by the Contractor and provision of~~ permanent or temporary supports and reinforcing of such foundations, structures, buildings, roads or paved areas or the like, either on or adjacent to the Site as appropriate~~and obtaining the prior consent of the Engineer before commencing such Foundation Piling Works~~.

コメントの追加 **[JICA78]:** (7)としてください。

8.2.2 Safety Measures Before Commencement

The Contractor shall plan all Foundation Piling Works before commencement so that they are executed in a safe and methodical manner. The safety measures before commencement of the

Works shall be as follows:

(1) The HSO shall inspect the Foundation Piling Works' working area and surrounding areas and ensure that all of the following is acceptable before allowing the Foundation Piling Works to commence:

(a) The ground is level and capable of supporting the loading of the Contractor's Equipment including any dynamic effect of the Foundation Piling Works and the load of any materials to be placed thereon;

(b) The area is clear of any obstructions; and

(c) The areas are properly drained and free from standing water.

If necessary, the Contractor shall improve the ground by stabilising, cleaning, draining, providing paving and/or placing steel decking and temporary piling and the like to provide a suitable, clean, dry and safe working area without causing any risk to the stability of Contractor's Equipment or materials.

8.2.3 Safety Measures for Transportation on Site - Appropriate Equipment and Vehicle

Piles and pile casings, liners, reinforcement cages and the like shall not be transported or relocated by use of pile driving or drilling machines. In all cases the Contractor shall use cranes accompanied or where necessary, trucks and flatbed trailers for the transportation or relocation.

8.2.4 Safety Measures for Driven Piling

The Contractor shall:

(1) Select correct rigging method and appropriate Rigging Equipment to suit the characteristics of the lifting or pile driving machine and the piles, so that piles are mishandled or dropped.

(2) Keep workers other than those directly engaged in the driving operations away from the direct working location when driving operations are taking place.

(3) Provide a lifeline to fix PFAS on the lead when the worker works on the lead of pile driving machine in addition to the fall prevention measures stipulated in JSSS 2.5 [*Fall Prevention*].

8.2.5 Safety Measures for Cast-in-place Piling

When any Cast-in-place Piling Works are adopted, the Contractor shall take appropriate safety measures taking account of features of different methods of work, in particular:

(1) Pile Excavation Works using All-Casing Piling Method:

(a) Keep workers other than those directly engaged in the piling operations away from the pile excavation machine while installing and removing the casing and operating the drop hammer grab. Before any worker is allowed to access the casing or equipment whilst the hammer grab is being operated, ensure that the hammer grab is secured in the casing; and

(b) When any worker needs to enter the casing, confirm that there is no danger in accordance with JSSS 2.1.5 [*Further Requirements for Dangerous Work*].

(2) Pile Excavation Works for Reverse Circulation Bored Piling Method:

(a) When adding or removing drill rods, ensure that a Spotter is present to signal the operator of the drilling machine so that the hands and fingers of workers do not get caught in the work;

(b) Maintain the water level and concentration level of slurry (bentonite solution) in the drilled hole as planned in the Method Statement and prepare for addition or discharge of slurry, consequent to any fluctuation; and

(c) When providing a mud creation pit or a mud discharge pit, take measures to prevent workers from falling into such pits by providing barriers and signage.

(3) Pile Excavation Works for Auger Piling Method:

(a) To prevent overturn of drilling or auger equipment, consider the weight of excavated material in the drilling bucket or on the auger during operation; and

(b) Keep workers other than those directly engaged in the drilling works, away from the drill or auger to prevent injury through splashing or falling of mud or earth or through contact with drill or auger.

8.2.6 Placement of Concrete

(1) Reinforcement cages shall be designed, manufactured and hoisted into place so that they do not deform.

(2) Provide secure rigging slings and welded metal fixings to ensure that reinforcement cages, ~~tremie pipes~~ are secure and do not slip or drop off the Hoisting Equipment. Tremie pipes shall be treated in same manner so that no danger of slip or drop off the Hoisting Equipment. Provide secure rigging equipment and operate hoisting to ensure that reinforcement cages and tremie pipes do not slip or drop off from the Hoisting Equipment in accordance with the Method Statement and Safety Plan.

(3) When handling reinforcement cages and tremie pipes, ensure that a Spotter is present to signal the operator of the machine so that the hands and fingers of workers do not get caught in the work.

8.2.7 Safety Measures for Hand-Dug Piling

Unless otherwise specified in the Particular Safety Specification, the Contractor shall comply with the requirements of the following (1) to (3):

(1) Hand-Dug Piling shall not be adopted by the Contractor in ground with unfavourable conditions such as:

(a) High ground water levels;

(b) Weak geological structure including the possible presence of voids or caverns;

(c) Reclamation or, landfill sites ~~or chemically-contaminated sites;~~

~~(c)~~(d) Possible existence of Hazardous Substances;

~~(d)~~(e) Containing loose fill in depths exceeding 10 m;

~~(e)~~(f) In areas with history of deep-seated ground movement;

~~(f)~~(g) Close proximity to water or sewage tunnels; and

~~(g)~~(h) Close proximity to shallow foundations.

(2) Hand-Dug Piling may for example be adopted by the Contractor in the following situations where there are no unfavourable conditions:

(a) Steeply-sloping sites with pile depths less than 25 m in depth in soil;

(b) Sites with difficult access or insufficient working room where it may be impractical or unsafe to use mechanical plant; and

(c) Where noise, vibration or damage may be caused by driven or bored piling and which must be avoided.

(3) Hand-Dug Piling shall:

(a) Be not less than 2 m diameter;

(b) Be not more than 25m deep; and.

コメントの追加 [JICA79]: 鉄筋籠とトレミーは時点が異なるので分離して記載した方がいい。

コメントの追加 [J80]: "Hoisting Equipment" with capital letters is defined in Chapter 5, only for use in such Chapter. So, probably "hoisting equipment"?

コメントの追加 [J81]: ditto

コメントの追加 [YM82]: これを含めなければならない特段の理由がなければ削除してください。通常狭いところで他に選択肢がない場合に行うのが深礎なので、埋め立て地では敢えてやる必要はないですが、禁止する必要もないように思います。

(c) Have continuous shaft lining.

(4) Access/Exit Facilities

The Contractor shall:

(a) Provide safe and efficient access, egress and emergency exit facilities in the shaft for workers;

(b) Provide vertical ladders, securely anchored to framework or shaft lining and complete with a ladder safety system;

(c) Provide a landing rest platform every 5 m, when the length of any ladder exceeds 10 m~~ and otherwise comply with the requirements provided in OSHA 1926.1053 Ladders where such requirements exceed those specified in this subclause~~;

(d) Ensure that the upper end of vertical ladders projects at least 1m above the ground and any landing rest platforms;

(e) Provide appropriate and adequate pumps to remove all water from the base of the shafts; and

(f) Take measures to prevent any accidents involving workers with the spoil removal containers and any other equipment particularly throughout the bucket hoisting and descending operations.

(5) Ladder Safety System

(a) A ladder safety system shall be provided to eliminate the risk of injury to any worker falling off the ladder; and

(b) The ladder safety system shall comprise a carrier, safety sleeve, lanyard, connectors, and body harness and all workers shall be trained in its use.

(6) Communication and Signalling Measures

(a) Signals for delivering materials and equipment or discharging excavated materials to and down or from the shaft shall be determined in advance and all workers shall be trained in their use;

(b) Signals and evacuation methods during emergencies shall also be determined in~~ in~~ advance and all workers shall be trained in their use with regular evacuation training; and

(c) Where considered necessary by the HSO handheld radios shall be provided to the Operation Leader working at the base of the shaft and a Spotter at the ground level for all communications.

(7) Environmental Measures

(a) Ensure a continuous, adequate and safe air supply to workers located at the bottom of the shaft;

(b) Provide monitoring equipment, set up alarms and evacuate workers if air quality deteriorates and keep records in accordance with JSSS 2.1. [*Work Environment*]; and

(c) Provide adequate temporary lighting

(8) Measures before Commencing Work

Check the condition of the excavated ground surface in the shaft and whether there is any abnormality in the shaft lining.

(9) Measures during Execution of the Work

(a) When workers are in the shaft, assign a Spotter at ground level and located within

コメントの追加 [伊藤83]: この部分は不要に思える。
OSHA の該当部分は以下の通り。
(18) Fixed ladders shall be provided with cages, wells, ladder safety devices, or self-retracting lifelines where the length of climb is less than 24 feet (7.3 m) but the top of the ladder is at a distance greater than 24 feet (7.3 m) above lower levels.
(19) Where the total length of a climb equals or exceeds 24 feet (7.3 m), fixed ladders shall be equipped with one of the following:
(i) Ladder safety devices; or
(ii) Self-retracting lifelines, and rest platforms at intervals not to exceed 150 feet (45.7 m); or
(iii) A cage or well, and multiple ladder sections, each ladder section not to exceed 50 feet (15.2 m) in length. Ladder sections shall be offset from adjacent sections, and landing platforms shall be provided at maximum intervals of 50 feet (15.2 m).

direct view at the upper edge of the shaft;

(b) Minimise the depth of each stage of excavation;

(c) Avoid introducing new teams of workers or changing over teams until each stage of excavation is completed and temporary support or shaft lining has been installed;

(d) Provide immediate temporary support for the excavated faces prior to casting the liner;

(e) Providing reinforcement to the concrete liner;

(f) Providing drainage to each stage of excavation with relief wells, sumps and pumping as appropriate:

(g) Stop the work and evacuate workers when abnormal water inflow occurs in the shaft and resume work only after taking countermeasures and confirming the safety of the Site and the effectiveness of the measures;

(h) Pay constant attention to any changes in soil types, properties, etc. and if any abnormality is identified at the excavated surface during work or in the shaft lining, immediately stop the work, evacuate workers and take appropriate remedial measures, resume the work only after confirming that there is no further risk; and

(i) Ensure nothing is dropped into the shaft that may injure workers.

8.2.8 Monitoring Impact of Foundation Piling Works on Other Properties

The Contractor shall comply with the requirements JSSS 2.1.7 *[Monitoring and Records]*.

CHAPTER 9: CONCRETE WORKS

9.1 GENERAL

9.1.1 Scope

(1) This Chapter specifies the safety requirements for concrete works which include:

(a) Cast-in place (poured or pumped) concrete;

(b) Reinforcement (reinforcing bar and fabric reinforcement);

(c) Formwork (including associated ~~falsework~~Falsework);

and which are hereinafter collectively referred to as "Concrete Works".

(2) General safety requirements, covering for example Contractor's Equipment including stone crushing plants and screening equipment, concrete batching plants, Temporary Works and other related matters~~, all which apply to the work in this Chapter~~, are described in other Chapters of JSSS.

Additional particular requirements are contained in this Chapter.

9.1.2 Safety Plan and Instructions to Workers

Prepare a Safety Plan describing the safety requirements for Concrete Works and inform all workers engaged in the Concrete Works of the content and requirements. The Safety Plan shall pay due care to the workers' health matters (e.g. back injury) in relation to handling of reinforcement, formwork panels or other heavy items, and include necessary preventive measures (e.g. using appropriate Contractor's Equipment, assigning sufficient number of workers).

9.2 PARTICULAR SAFETY MEASURES FOR CAST-IN PLACE CONCRETE WORK

The following safety requirements are additional to the general requirements described in other Chapters.

9.2.1 Safety Measures at Planning Stage

(1) The Contractor shall plan all Concrete Works so that they are executed in a safe and methodical manner.

(2) The Contractor shall plan the method of cast-in place concrete placement and carry out the design and construction of ~~f~~Formwork and ~~f~~Falsework to take account of uneven and excessive impact force and different or asymmetrical loads, thicknesses and pressures in certain areas during concrete placement to avoid deformation beyond allowable tolerances specified in the Contract, any damage or collapse of ~~f~~Formwork or F~~f~~alsework and show all details in the Method Statement and Safety Plan.

~~(3) The Contractor shall plan the method of cast-in place concrete placement and carry out the design and construction of formwork Formwork and falsework Falsework to take account of uneven and excessive impact force and different or asymmetrical loads, thicknesses and pressures in certain areas during concrete placement to avoid deformation beyond any tolerances for concrete structure that may be specified in the Particular Safety Specification, any damage or collapse of formwork Formwork or falsework Falsework and show all details in the Method Statement and Safety Plan.~~

~~(4)~~(3) The Contractor shall provide PPE such as rubber gloves, face masks and goggles to the workers when spraying concrete form release agents to prevent chemical injury, and where there is a possibility that release agent may splash on the third parties, take measures such as establishing exclusion zone with temporary barriers and locate Spotters to prevent those persons from entering the area.

コメントの追加 [JICA84]: (2)と(3)はほぼ同じ、制作誤差範囲の規定を契約とする（２）か特記安全仕様書とするか（３）だけの違い。どちらか一つで良い。

9.2.2 Safety Measures for Placement

The Contractor shall:

(1) Designate concrete placement works (including all pumping and hoisting of concrete) as Dangerous Work, enclose the immediate working area with temporary signs and fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry - Dangerous Work*].

(2) Inspect all reinforcement, ~~formwork~~ Formwork and ~~falsework~~ Falsework before and during concrete placement. If any abnormality~~defect~~ is discovered, stop the placement works and evacuate the workers immediately, carry out repairs and reinspect before resuming.

(3) Place the concrete in accordance with the Method Statement and avoid uneven and excessive impact force and different or asymmetrical thicknesses and pressures in certain areas during concrete placement Additional materials shall be stored at the concrete placing site for use to reinforce ~~falseworks~~ Falseworks in case of occurrence of their local deformation.

9.2.3 Safety Measures for Placement by Pumping

The Contractor shall take the following safety measures for delivery of cast-in place concrete with the use of concrete pumps:

(1) Inspect the condition of concrete pump delivery pipes, end hoses and all connections, ensure that they are free from defects and blockage, check that all joints and connections are secure and free from leakage before and during concrete placement works.

(2) Ensure that all delivery pipes, end hoses and other system components are all correctly pressure rated and capable of withstanding the maximum pump pressure.

(3) Maintain a safe separation distance between the delivery pipe, end hose and boom and any existing Overhead Services as required by JSSS Chapter 3 [*Existing Underground, Concealed and Overhead Services*], Table 3.2.1: Safe Separation Distances.

(4) Maintain a safe separation distance from any obstructions (Contractor's Equipment, buildings, etc.) and avoid any risk of hitting or touching any obstructions with the pumping equipment, delivery pipes, end hoses or boom.

(5) Check the ground condition, ensure a firm, stable and horizontal working base at all times and position pumping equipment and ready-mixed concrete trucks at a safe distance from the edge of any excavations, drop or slope to protect against any slippage or fall of equipment and ready-mixed concrete trucks or collapse of ground.

(6) Fully extend outriggers and ensure stability of pumping equipment and ready-mixed concrete trucks at all times.

(7) Arrange proper communications and signals before starting the placement between workers, Spotters and operators of equipment and ready-mixed concrete trucks and ensure there is a Spotter at the point of placement.

(8) Never allow workers to stand between ready-mixed concrete trucks and pumps when ready-mixed concrete trucks are reversing.

(9) Ensure that workers are out of the path of the boom when moving the boom.

(10) If a blockage or clogging occurs inside the pipeline during the pour, stop pumping immediately and instruct workers to move to a safe position before attempting to remove the blockage or clogging. The pipeline shall be opened after releasing the pressure inside in accordance with the predetermined procedure.

(11) Ensure that hoppers and chutes are securely fixed and that workers are aware of the method of operation and safe use.

(12) Ensure that the delivery pipe and hose at the end of the concreting pump booms are securely connected so that they do not fall or become detached.

(13) Prohibit workers from working on the hopper screen of the concrete pump, remove obstructions and foreign materials in the hopper only after stopping the agitating blade and applying lockout/tagout procedures.

(14) Prohibit workers from entering in front of and below the outlet of concrete pump delivery pipes and end hoses to prevent workers being struck by pipes or flailing hoses.

9.2.4 Safety Measures for Ready-Mixed Concrete Trucks

The Contractor shall take the following measures for the ready-mixed concrete trucks in the transportation and delivery of cast-in place concrete.

(1) Ensure that drivers are aware of and take due account of the heavy load and high centre of gravity of loaded ready-mixed concrete trucks during delivery and discharge to maintain safety and prevent overturning.

(2) Ensure that workers do not come into contact with and/or become entangled with the rotating drum and other moving parts of ready-mixed concrete trucks and that they are prevented from looking into the drum.

9.2.5 Safety Measures for use of Concrete Buckets

The Contractor shall take the following measures when using concrete buckets for hoisting and placement of cast-in place concrete:

(1) Comply with JSSS 5.2.5 [*General Safety Measures for Hoisting Operations*] for selection of proper Hoisting Equipment and Rigging Equipment, arrangement of proper communication tools, signals and placement of Spotters.

コメントの追加 [J85]: same comment as 8.2.6

(2) Ensure that the movable gate is locked before hoisting and is only operated by a skilled worker when it is opened for discharge.

(3) Take measures to stabilise the bucket during hoisting and prevent any uncontrolled swinging. Prohibit workers from pushing and pulling bracket except for minor adjustment of location of the bucket for discharging concrete.

(4) Prevent any persons or workers from entering the places below bucket.

(5) Discharge the concrete slowly and in a controlled manner to prevent the bucket from rebounding after discharge.

9.2.6 Safety Measures for use of Concrete Vibrators

The Contractor shall take the following measures when using concrete vibrators for compacting of cast-in place concrete:

(1) Take all necessary measures to prevent electric shock, complying with JSSS 4.3.12 [*Additional Requirements for Electric Powered Equipment*].

(2) To prevent vibration injury to workers, provide anti-vibration gloves and ensure that they are properly used.

9.3 REINFORCEMENT

9.3.1 Safety Measures at Planning Stage

The Contractor shall:

(1) Prepare a Safety Plan, Method Statement and fixing and placing drawings of reinforcement describing the method of cutting, bending and fixing and showing the types and positioning of supports, ties and bracing necessary to support and rigidly secure the reinforcement and to prevent any movement or collapse.

(2) Inform all relevant workers of the content of the Safety Plan, Method Statement and assembly drawings.

9.3.2 Safety Measures at Cutting, Bending, Transporting, ~~Fabrication,~~ Fixing and Placing Stages

The Contractor shall take the following measures during cutting, bending, transporting, fixing and placing of reinforcement:

(1) Cutting and Bending:

(a) Designate the work as Dangerous Work, enclose the immediate working area with temporary signs and fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry - Dangerous Work*];

(b) Maintain the working area in a safe, organised, uncluttered and clean condition at all times, avoid excessive storage by retaining sufficient quantities of reinforcement for immediate use, locate equipment in known positions, prevent any fall or dropping of material, equipment and tools, remove offcuts to a separate area and ensure the area is safe and that the risk of workers falling or tripping is avoided; and

(c) Maintain stored reinforcement material in a safe and secure manner and prevent collapse or fall by providing adequate restraints.

(2) Transporting:

(a) Ensure that ~~scaffolding~~ Scaffolding and any other temporary structures on which reinforcement is to be temporarily placed is capable of supporting the load, ensure that the load is distributed safely and that it~~s~~ does not cause any obstruction to the passage of other workers;

(b) Ensure that reinforcing bar is lifted and suspended horizontally to prevent any slippage during Hoisting Operations and also that it is bundled safely and securely tied to prevent any reinforcing bars from sliding out;

In principle, hoist the bundle of reinforcing bars, keeping them horizontal and maintaining the balance by using two rigging slings; and

(c) When transporting to the working location use flatbed trailers or truck, ensure that the trailer or truck is of sufficient length to avoid any overhang of reinforcing bars and provide appropriate warning signs and lighting on reinforcing bars if necessary in accordance with the local regulations to avoid collision with other vehicles, persons and workers.

(3) Fixing and Placing:

(a) Prepare proper temporary access to and support for fixing and placing reinforcement in position;

(b) Prevent any risk of fall and also any distortion or weakening of reinforcement by prohibiting workers from standing, walking or climbing on such reinforcement and where necessary provide safe temporary boarded walkways for workers use;

(c) Ensure that fixing and placing is in exact accordance with the fixing and placing drawings and that the correct types and positioning of supports, ties and bracing is maintained to properly support and rigidly secure the reinforcement and prevent undue movement or collapse;

(d) When there is any danger of reinforcement falling or collapsing during fixing and placing in wind and rain, stop the fixing and placing work. After conditions improve, inspect the reinforcement and take measures to correct any abnormality before continuing with fixing and placing;

(e) Prohibit working concurrently at levels where any other worker is working underneath in accordance with JSSS 2.6.7 [*Working Above or Below Others*]; and

(f) Provide temporary protection caps to exposed ends of reinforcing bars to prevent injury to workers.

9.4 FORMWORK (INCLUDING FALSEWORK)

9.4.1 General

Any reference to "~~formwork~~Formwork" in this Section shall also be deemed to include reference to the associated ~~falsework~~ Falsework for that ~~formwork~~Formwork.

9.4.2 Safety Measures at Planning Stage

The Contractor shall:

(1) Design the formwork and manage its provision, use and removal in accordance with JSSS 1.37 [*Design and Management of Temporary Works*] and the further requirements of JSSS Section 6.1 [*General Requirements of Temporary Works*].

(2) Prepare a Safety Plan, Method Statement and design drawings of formwork describing the method of fabrication, assembly, erection and removal and showing details of all materials, components, types and positioning of supports, ties and bracing necessary to create a rigid and secure temporary support structure for the concrete, reinforcement and workers and to prevent any movement or collapse.

(3) Inform all relevant workers of the content of the Safety Plan, Method Statement and design drawings.

9.4.3 Safety Measures at Fabrication and Assembly Stage

The Contractor shall take the following measures during fabricating, transporting and assembling of formwork:

(1) Designate the work as Dangerous Work, enclose the immediate working area with temporary signs and fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry - Dangerous Work*].

(2) Maintain the working area and storage area in a safe, organised, uncluttered and clean condition at all times, avoid excessive storage by retaining sufficient quantities of material for immediate use, locate equipment in predetermined places, prevent any fall or dropping of material, equipment and tools, remove offcuts to a designated area.

(3) Ensure that the F~~f~~ormwork is free from cracks, defects and deformation.

(4) Ensure that ~~scaffolding~~ Scaffolding and any other temporary structures on which formwork is to be temporarily placed is capable of supporting the load, that the load is distributed evenly and within the allowable stress of formwork.

(5) During any ~~hoisting~~ Hoisting ~~operations~~Operations, ensure that all necessary measures are taken to prevent formwork being affected by wind and that any risk of collision and consequent injury and damage is avoided.

9.4.4 Safety Measures during Dismantling and Removal Stage

(1) Ensure that formwork is only dismantled when so instructed or approved in writing by the HSO.

(2) After dismantling, stack formwork panels horizontally to avoid overturning due to strong wind or applied loadings; and

(3) Any protruding nails, wires, projecting members and splinters shall be removed or bent flat to avoid injury to workers and other persons.

CHAPTER 10: DIVING WORKS

10.1 GENERAL

10.1.1 Scope

This Chapter specifies the safety requirements for Diving Operations which shall include ~~surface~~Surface ~~supplied~~ Supplied ~~air~~ Air ~~diving~~ Diving and SCUBA ~~diving~~ Diving and which are hereinafter collectively referred to as "Diving Works".

Saturation diving and mixed-gas diving are not included.

10.1.2 Definitions

(1) The definition of terms for the purpose of this Chapter are as follows:

(a) "**Designated Person-in-Charge**" or "**DPIC**" means a senior person who, through qualification, experience and capability is deemed by the HSO to be qualified to be in charge of all aspects of the ~~diving~~ Diving ~~operation~~ Operation including those affecting the safety and health of members of the Dive Team;

(b) "**Dive Team**" means Divers, support assistants and ~~dive~~ workboat crew who are involved in any Diving Operation, including the Designated Person-in-Charge;

(c) "**Diver**" means a worker working in water using underwater breathing apparatus which supplies compressed breathing gas at the ambient pressure;

(d) "**Diving Operation**" means one single diving activity for one Diver or a team of Divers commencing from the time when the first Diver enters the water and extending until the last Diver has left the water, chamber or other environment in which the dive, or any part of the dive, took place and has completed any requisite decompression procedures, including, where it may be reasonably anticipated that this will be needed, any therapeutic recompression. The nature and size of any Diving Operation shall be such that it can be safely supervised by one person;

(e) "**Diving Works**" means a part of the Works consisting ~~any activity, made up~~ of one or more Diving Operations, ~~commencing from the first Diving Operation and extending until the latest Diver in the last Diving Operation has left the water, chamber or other environment in which the dive, or any part of the dive, took place and has completed any requisite decompression procedures, including, where it may be reasonably anticipated that this will be needed, any therapeutic recompression. "**Diving Works**" is the term used for the overall diving job whether it lasts two hours or two months, and it can be made up of one or more Diving Operation~~;

(f) "**Dive Safety Plan**" means the Safety Plan prepared for Diving Works in accordance with JSSS 10.2 [*Dive Safety Plans*];

(g) "**SCUBA Ddiving**" means a diving mode independent of surface supply in which the Diver uses open circuit self-contained underwater breathing apparatus; and

(h) "**Surface ~~supplied~~ Supplied ~~air~~ Air ~~diving~~Diving**" means a diving mode in which the Diver is supplied at the dive location with a piped supply of compressed air for breathing.

10.1.3 Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Chapter or relevant to the subject of this Chapter and which are not fully covered by JSSS, the Contractor shall take necessary measures for Diving Works complying with the technical requirements specified in OSHA 29 CFR Part 1910, Subpart T – Commercial Diving Operations for ~~surface~~Surface ~~supplied~~ Supplied ~~air~~ Air ~~diving~~ Diving and SCUBA ~~diving~~ Diving (excluding saturation and mixed-gas diving).

コメントの追加 [J86]: Annex 1.1 にも定義あり。どちらかを削除。

コメントの追加 [JICA87]: (d)とほとんど内容が同じで意味を為していません。左記のように修正してはどうでしょうか。

10.2 DIVE SAFETY PLANS

10.2.1 General Requirements for the Dive Safety Plans

~~(1)~~ The Contractor shall prepare Dive Safety Plans as part of the Safety Plan for the Works in compliance with the requirements of with JSSS 1.7 [*Contractor's Safety Plans*].

~~(2) The submission requirements in accordance with JSSS 1.7.3 [*Contractor's Safety Plans*] shall be as follows:~~

~~(a) The Bid Stage Safety Plan shall include the Outline Dive Safety Plan;~~

~~(b) The Commencement Stage Safety Plan shall include the Updated Dive Safety Plan; and~~

~~(c) The Particular Safety Plans shall include the individual Particular Dive Safety Plans to be submitted for and in advance of each Diving Operation.~~

10.2.2 Bid Stage ~~Dive~~ Safety Plan

In compliance with JSSS 1.7.6 [*Bid Stage Safety Plan*], the Bid Stage ~~Dive~~ Safety Plan shall include an outline plan indicating the Contractor's operational procedures for each diving mode to be used in the Works ~~(referred to in OSHA as the "safe practices manual")~~. This shall be in sufficient detail to give an understanding of the Contractor's intentions regarding the diving safety procedures that the Contractor intends to implement.

~~(1) The Bid Stage Dive Safety Plan shall contain a copy of the OSHA standard and the Contractor's policies for implementing the requirements of this standard.~~

10.2.3 ~~Commencement Stage~~ Baseline ~~Dive~~ Safety Plan

(1) In compliance with JSSS 1.7.7 [~~*Commencement Stage Safety Plan*~~*Baseline Safety Plan*], the ~~Commencement Stage~~ Baseline ~~Dive~~ Safety Plan shall be a development of the Bid Stage Dive Safety Plan and shall include detailed safety procedures and standard checklists to apply to all Diving Operations, equipment procedures, and emergency procedures (at a minimum covering fire, equipment malfunction or failure, adverse environmental conditions and medical illness and injury).

(2) The HSO shall review the ~~Commencement Stage~~ Baseline ~~Dive~~ Safety Plan to determine if it is correct and compliant with the requirements of OSHA and JSSS.

(3) A copy of the ~~Commencement Stage~~ Baseline ~~Dive~~ Safety Plan together with a copy of the OSHA standard and the Contractor's policies for implementing the requirements of OSHA (from the Bid Stage Dive Plan) shall be made available at the dive location to each Dive Team member and explained to the Dive Team by the HSO and DPIC.

10.2.4 ~~Particular~~ Dive Safety Schedule~~Plans~~

(1) In order to secure safety of all Diving Operations, a dive safety schedule shall be prepared containing information specific to Diving Operations to be carried out in a day together with~~In compliance with JSSS 1.7.8 [*Particular Safety Plans*], The Particular Dive Safety Plans shall contain all further information specific to each Diving Operation not covered by the foregoing Bid Stage and Commencement Stage Dive Plans together with~~ all supplemental information obtained during pre-dive planning and assessment, to collectively demonstrate the Contractor's compliance with the requirements OSHA and JSSS for each Diving Operation, including for example:

(a) Safety procedures and checklists for each Diving Operation;

(b) Name of each Dive Team member, buddy diver assignments, individual work assignment and responsibility and confirmation from the DPIC that they each comply with all diving health and safety requirements and are therefore approved to work on the Diving Operation;

書式変更: インデント : 左 : 22.5 mm, 行頭文字または番号を削除

(c) The planned dive profile for each Diver showing their maximum bottom time and ascent rate with decompression stages and times, ~~and~~ taking account of repetitive dives;

(d) Description of all diving equipment, diving gases and consumables, PPE, procedures for their use and signed checklists to confirm compliance;

(e) Description of the workboat and workboat facilities, together with information on the location of the workboat in relation to the dive site, and procedures for the use and operation of the ~~dive~~ workboat during Diving Operations, any surface hazards and any restriction in operation due to surface traffic conditions;

(f) Description of all other Contractor's Equipment, tools and consumables for the assigned work tasks, procedures for their use and checklists;

(g) The arrangements at the Site of the Diving Works for emergency recompression/decompression and the safe transport of any Diver for treatment.

(h) The climatic, marine, natural and physical conditions that are likely to be encountered during any Diving Operation and the procedures for commencement, continuation or stopping of any Diving Operation following any change in these conditions in accordance with JSSS 10.3 [*Climatic, Marine, Natural and Physical Conditions*];

(i) Communication systems and procedures for communications:

(i) between Divers;

(ii) between Divers and the workboat; and

(iii) Between the work-boat and the relevant marine authorities.

(j) Any further information and instructions to be given to the Divers, support assistants and other workers related with the Diving Operations and the working methods and safety measures;

(k) A dive safety schedule shall be prepared by DPIC or another Diver that has qualification, experience and capability deemed sufficient by the HSO~~The Particular Dive Safety Plan shall be prepared by the DPIC or another Diver that that has the qualification, experience and capability deemed sufficient by the HSO~~;

(l) A dive safety schedule shall be submitted to the HSO by the day preceding the scheduled date of the Diving Operations for his review and approval~~The Particular Dive Safety Plan shall be reviewed and approved by the HSO~~;

(m) The content of the ~~Particular D~~dive s~~S~~afety ~~Plan~~schedule shall be explained to all Dive Team members during the employee briefing by the HSO or DPIC in accordance with OSHA 29 CFR 1910.421(f));

(n) If considered necessary by either the HSO or DPIC, individual Dive Team members shall be given additional training and testing; and

(o) A copy of the ~~Particular D~~dive s~~S~~afety ~~Plan~~schedule shall be made available at the dive location to each Dive Team member.

10.3 CLIMATIC, MARINE, NATURAL AND PHYSICAL CONDITIONS

10.3.1 General

(1) The Contractor shall compile relevant information from statistical records, recent and current forecasts of conditions which may be encountered ~~in support of the Particular Dive Safety Plan~~ and shall establish criteria and controls for commencement, continuation or stopping of any Diving Operation due to such conditions.

(2) The ~~Commencement Stage~~ (updated) Baseline ~~Dive~~ Safety Plan shall describe how such

criteria shall be applied and how such controls shall be implemented.

10.3.2 Information on Conditions for ~~Particular~~ d~~D~~ive ~~S~~safety ~~Plans~~schedule

(1) Where necessary, the Contractor shall make exploratory dives to survey and establish all relevant conditions at the dive site such that all ~~Particular D~~ddive ~~S~~safety ~~Plans~~schedule are based upon the best and most timely available information.

(2) Relevant information shall also be obtained by the Contractor from all available sources and shall include for example the following:

(a) Climatic information and forecasting at the diving location:
  (i) Wind speed and direction;
  (ii) Air temperature;
  (iii) Surface visibility, fog, sea mist;
  (iv) Likelihood and intensity of electrical storm; and
  (v) Weather forecasting.

(b) Water/Marine Conditions
  (i) Sea state; wave height and direction;
  (ii) Height and time of tides;
  (iii) Water depths;
  (iv) Water Temperatures;
  (v) Water currents, direction and speed;
  (vi) Visibility at depths; and
  (vii) Water level variation in rivers or lakes during flood periods.

(c) Physical Conditions
  (i) Underwater cables and pipes;
  (ii) Wreckage and other artificial obstacles;
  (iii) Geotechnical conditions affecting the work; and
  (iv) UXO, Dangerous Goods and Hazardous Substances.

(d) Natural Conditions
  (i) Natural obstructions;
  (ii) Coral reef or other marine life to be protected; and
  (iii) Danger from wildlife and precautions to be taken.

(e) Surface Traffic
  (i) Surface traffic details, timings and restrictions, and
  (ii) Danger, precautions and control of surface traffic.

(f) Diving Works Area
  (i) Demarcation of diving location; and
  (ii) Limits of working area.

10.4 PERSONNEL FOR DIVING OPERATIONS

10.4.1 Qualification of Diving Personnel

Qualification of the Dive Team members shall be in accordance with the specified OSHA requirements and shall for example include the following:

(1) Each Diver shall possess a valid commercial diving certification for the appropriate training level issued by an internationally recognised Diver competence assessment organisation which shall be approved by the HSO and Engineer.

(2) Each Dive Team member shall have the experience and training necessary to perform assigned tasks in a safe and healthful manner.

(3) Each Dive Team member shall have experience and training in the following:

(a) The use of tools, equipment and systems relevant to assigned tasks;

(b) Techniques of the assigned diving mode; and

(c) Diving Operations and emergency procedures.

(4) All Dive Team members shall be trained in CPR~~cardiopulmonary resuscitation~~ and first aid to a minimum standard of that recommended by the International Federation of Red Cross and Red Crescent Societies standard course or equivalent.

(5) Dive Team members who are exposed to or control the exposure of others to hyperbaric conditions shall be trained in diving-related physics and physiology.

(6) The qualifications of all Divers shall be checked and verified in accordance with the specified OSHA requirements.

10.4.2 Designated Person-in-Charge (DPIC)

(1) The Contractor shall assign a DPIC to each Diving Operation.

(2) The DPIC shall have experience in, and knowledge of all phases of the Diving Operation for which he is responsible.

(3) The DPIC shall be immediately responsible for the health and safety of the Dive Team.

(4) The DPIC shall be stationed at the dive location, and shall not be stationed at another dive location (i.e., the DPIC must be stationed at one dive location and be responsible only for the Diving Operation at that location).

(5) The DPIC can be a Diver when qualified as a Diver, and when another Dive Team member is available at the dive location who is trained and capable of performing the necessary functions of the DPIC's duties when the DPIC is a Diver in the water.

(6) The qualifications of the DPIC shall be checked and verified in accordance with the specified OSHA requirements.

10.4.3 Duties of DPIC

The DPIC shall have the duties and responsibilities required by the content of this Chapter and the specified OSHA requirements, including the following:

(1) Manage the health and safety of the Dive Team.

(2) Manage and supervise the Diving Operation.

(3) Assign tasks to Dive Team members.

(4) Issue instructions for the Diving Operation to the Dive Team.

(5) Issue instructions to temporarily stop work when the DPIC considers that it is not safe to continue.

(6) Support the HSO with the health and safety management of the Diving Operations.

(7) Ensure that all members of the Dive Team keep records.

(8) Collect records, check, approve and submit to HSO.

10.4.4 Diver Assignments

(1) Each Dive Team member shall be assigned tasks commensurate to the persons experience and training, except that limited additional tasks may be assigned to a Diver undergoing training provided that these tasks are performed under the direct supervision of an experienced Dive Team member.

(2) The HSO shall not permit a Dive Team member to be exposed to hyperbaric conditions against the member's will, except when necessary to complete decompression or treatment procedures.

(3) The HSO shall not permit a Dive Team member to dive or be otherwise exposed to hyperbaric conditions for the duration of any temporary physical impairment or condition ~~which is known to the Diver's employer and the DPIC and~~ which is likely to affect adversely the safety or health of a Dive Team member.

~~(4) No Diver shall dive in any Diving Operation unless the DPIC and the complete Dive Team are present.~~

コメントの追加 [JICA88]: JSSS10.6.2(3)(a)に同内容があるため削除。 (OSAWA)

10.4.5 Assistants and Duties of Dive Team

The Contractor shall appoint such Divers and support assistants within each Dive Team as are considered necessary by the DPIC for the Dive Team to discharge its duties in a safe and competent manner.

All Dive Team support assistants shall have the duties and responsibilities required by the content of this Chapter and the specified OSHA requirements, including the following:

(1) Operate the air compressors.

(2) Control the valve for the surface supply of breathing air.

(3) Communicate with the Diver so that the Diver descends and ascends properly.

(4) Communicate to supply the air to the Diver properly between the assistants in charge to control the valve and to communicate with the Diver.

(5) Inform the Diver immediately when there is any risk due to a failure of air supply, weather change, sea condition changes, operations of other vessels and potential hazards.

(6) Inspect the connection between the helmet and the breastplate of the Diver before the start of Diving Operations when using a diving helmet.

(7) Coordinate the position of the workboat and avoid any conflict with the Diver.

(8) Ensure the safety of the Diver by maintaining communication with voice or video communication device.

(9) Ensure the safety of the Diver by observing the air bubble of breathing of the Diver.

10.4.6 Health Checks

(1) In addition to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*] and in compliance with the OSHA requirement for the Contractor to make himself fully aware, the Contractor shall carry out particular health checks on all Divers to ascertain that they are medically and physically fit to perform their duties.

(2) Such checks shall include for example checks for the existence of any illness or any deficiency in:

(a) The respiratory system, cardiovascular system, nervous system, musculoskeletal

system, ear, nose and throat, and endocrine system;

(b) Vision;

(c) Dental health; and

(d) Any other health conditions and disease which may affect the Diving Operation.

(3) Any Diver that does not pass the above checks shall not be allowed to dive until the condition has improved and after further checks are successful.

(4) Additionally, and in accordance with the OSHA standard:

(a) The DPIC shall inquire into each Diver's health prior to each Diving Operation; and

(b) The Contractor shall advise all Divers of the procedures for reporting physical problems or adverse physiological effects during and after diving.

(5) Consistent with the above and the OSHA provisions, the Contractor shall not require any Diver to dive or otherwise work under hyperbaric conditions when the Diver:

(a) Has any ailment that is likely to adversely affect the safety or health of any member of the Dive Team;

(b) Lacks the necessary training or education; or

(c) Refuses to work under such hyperbaric conditions.

(6) Should a Diver request termination during a dive, the Contractor shall, if necessary, ~~it may be necessary to~~ prolong the Diver's exposure to hyperbaric conditions to complete decompression or medical recompression treatment to avoid serious physical harm or death to the Diver.

10.5 DIVING EQUIPMENT, TOOLS, FACILITIES AND WORKBOATS,

10.5.1 Diving Equipment

(1) The Contractor shall provide workboats, diving equipment, work tools and other facilities fully in compliance with OSHA 29 CFR Part 1910, Subpart T – Commercial Diving Operations, §1910.430 Equipment.

(2) Workboats, diving equipment, work tools and other facilities are defined as Contractor's Equipment and shall therefore comply with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

コメントの追加 [J89]: Bette to also refer to JSSS 4 since this relates to Contractor's Equipment?

10.5.2 Diving Workboats

(1) Workboats shall be:

(a) Robust and seaworthy;

(b) Stable in operation;

(c) Suitable size, draft and shape to suit the Diving Operations;

(d) Equipped with marine band radio and with a shore station that is attended at all time that the w~~W~~orkboat is in operation and can provide emergency support if required;

(e) Equipped with marine lighting;

(f) Equipped with life jackets, first aid sets, distress flares and other necessary emergency equipment;

(g) Provided with secure and robust ladders or platforms for Divers to easily enter or exit the water; and

(h) Provided with a roof and cabin to protect the crew and Dive Team from heat, cold and rain.

(2) Workboats shall be provided with the means to assist an injured Diver from the water (such as an in-water platform, small boat or basket stretcher) or into a diving bell. The Contractor shall ensure that there are sufficient Dive Team members or additional Contractor's Personnel to assist.

(3) Unless otherwise specified in the Contract, the Contractor shall provide a separate small boat for rescue at the workboat, suitable for assisting and recovering Divers who are in difficulty or have drifted away from position.

10.5.3 Inspections and Maintenance

The Contractor shall comply with all requirements of JSSS 4.2 [*Inspection, Maintenance and Repair*] and ensure that workboats, equipment, tools and facilities are inspected, fully maintained and operational when mobilised to the Site and thereafter are inspected, maintained and repaired before the commencement of the first and of all subsequent days of operation.

The Contractor shall keep the inspection and working records and make them available for the inspection of the Engineer upon request.

The Contractor shall prohibit use of workboats, equipment, tools and facilities until the requirements of JSSS 4.2 [*Inspection, Maintenance and Repair*] are fully complied with.

10.6 PARTICULAR SAFETY MEASURES

10.6.1 Measures before Diving Operations

The Contractor shall take the following measures before commencement of any Diving Operation:

(1) Dive Teams

(a) Discuss the diving methods and safety procedures;

(b) Discuss the work methods and procedures and the assignment and placing of the Divers and work task sharing;

(c) Advise of the diving timetable and required compliance;

(d) Inform of the climatic, marine, natural and physical conditions;

(e) Conduct the health check; and

(f) Check that support assistants and crew on the workboat are wearing life jackets.

(2) Equipment, work tools and other facilities

Inspect the equipment, work tools and other facilities, prohibit use when any defect or non-compliance is found, reinspect when a repair or replacement is completed.

(3) Diving workboats

(a) Inspect workboats and rescue boats;

(b) Display the international maritime diving signal flag and display signs and lights as necessary on the workboat;

(c) Securely anchor the workboat to the seabed; and

(d) Stop the engine during Diving Operation.

(4) Diving Operation site

(a) Provide signs including red flags, buoys and notices to demarcate the Diving Operation site; and

(b) Install a downline with depth indication marks at 3m intervals from the workboat to the sea bed at the Diving Operation site to act as a guideline for descending or ascending and as a guide for transfer of tools and equipment.

(5) Diving Equipment

(a) Check the diving equipment to be carried by the Divers:

(i) For ~~surface~~Surface-~~S~~supplied A~~a~~ir D~~d~~iving, check for example: air connections, compressed air supply, weight belt, voice or video~~,~~ communication device, torch, watch, water depth gauge, knife and the like.

(ii) For SCUBA ~~diving~~Diving, check for example: first stage, second stage and spare regulators, available air volume, secondary air supply, buoyancy control device, weight belt, tank straps, air valve, communication device, watch, water depth gauge, knife and the like.

コメントの追加 [JICA90]: 1 次 Regulator とは異なるものでしょうか。 (OSAWA)

(b) Check that the downline is secure and tight;

(c) Ensure as a minimum, that a two-way voice or video communication link is set up and working between at least ~~between~~ a single selected working Diver and the DPIC at the surface control point; and

If any defect is identified by the above checks, prohibit the Diving Operation from commencing.

10.6.2 Measures during Diving Operations

The Contractor shall take the following safety measures during each Diving Operation:

(1) A designated member (or members) of the workboat crew shall assist the DPIC by observing the Diving Operations ~~acting as tenders for~~of all Divers throughout all Diving Operation and inform the DPIC when ~~divers~~ Divers are carried away by currents and their location when they surface after their dive ascent.

(2) A designated member (or members) of the workboat crew on the workboat shall also keep a look-out for any other vessels that may approach the Diving Operation site.

The designated member(s) shall alert any other vessels related or not related with the Diving Operations with requisite warning blasts from the workboat's siren, loudhailer, flares and/or flags, etc. in order to prevent them from approaching and entering the Diving Operation site.

(3) Measures for the Divers

(a) Prohibit the Dive Team from commencing any Diving Operation without the DPIC and the complete Dive Team present, ready and equipped;

(b) Ensure that the Divers use the ladders for entering and exiting the water for the Diving Operation;

(c) Ensure that Divers use the downline for descending and ascending;

(d) Maintain constant voice or video communication through the provided link; and

(e) Ensure that the Divers constantly communicate with each other by hand signals and slate messaging.

(4) Ensure the DPIC or a Dive Team member at the surface, constantly observe the weather and marine conditions and there is any change that meets the work stop criteria, or if the conditions are considered to be otherwise unsafe by the DPIC, immediately stop the Diving Operation and ensure that the Divers are removed from the water in a safe and controlled manner.

(5) Safety and Health Management of Diving Operations

(a) Manage the Diving Works for each Diver so the Diver takes sufficient and safe surface time between dives ~~so that there is no risk~~to maintain ~~to~~ his health and wellbeing;

(b) Ensure that sufficient numbers of Divers and standby Divers are available to ensure that Divers are not in the water for excessive periods;

(c) Ensure that each Diver keeps an accurate record of his dive profile for every dive, showing overall time, bottom time and depth, decompression times and depths and that these are summarised by the Diver with a record of the number of dives on a daily, weekly and monthly basis;

(d) Ensure that the DPIC reviews and approves such records and that same are submitted by the DPIC to the HSO for the HSO's review and countersignature and made available for the Engineer's inspection; and

(e) Unless otherwise required by the Law of the Country, the Contractor shall retain all dive records for the periods specified in the OSHA 29 Subpart T 1910.440

10.7 DIVING ACCIDENT RESPONSE PLAN

10.7.1 General

The Contractor shall prepare an Accident Response Plan for the Diving Works in accordance with JSSS 1.24 [*Accident Response Plan*].

10.7.2 Provisions by the Contractor

The Contractor shall comply with following requirements prior to Diving Works.

(1) In accordance with the requirements of OSHA 1910.423(c) [*Recompression facility*], the Contractor shall make a recompression/decompression chamber available at the dive location to treat decompression sickness.

(2) The Contractor shall provide any additional recompression/decompression equipment and medical support facilities as necessary to ensure the health and safety of any members of the Dive Team that may require treatment for decompression sickness and other dive related conditions.

(3) The Contractor shall provide rescue and safety equipment, an emergency aid contact list, a first-aid kit and supplies. The rescue and safety equipment including decompression facilities, first-aid kit and supplies provided at the dive location shall be appropriate for the D~~d~~iving W~~w~~orks and approved by a physician. When used in a decompression chamber or bell, the first-aid kit and any medication shall be suitable for use under hyperbaric conditions.

(4) The HSO and DPIC shall secure that ~~determine whether~~ the recompression/decompression chamber, any additional recompression/decompression equipment, medical support facilities, rescue and safety equipment, emergency aid list, and first-aid kit are complete and available at the dive location.

１．各種修正について

原文に直接書き込みをする形で修正を加えているものについては、明らかに間違いであるようなもの以外については、もうそのままでファイナルとしてください。

欄外のコメントについての留意点は以下の通りです。

① 黄色で色を付けているものは、主として用語（英語）についてのものであり、JICA としても必ずしも自信がないものです。原文とこちらが示した修正候補と、どちらか適当な方を選択してください。

② 水色で網掛けをしてあるものについては、コメント通りに修正してください（例えば subclause の中に新しいパラグラフの番号を振らなければならず、我々が直接書き込むと編集の観点から文章の構成をくずしてしまうような場合にこうした対応をとっています)。

③ その他の書き込みは御社に対する説明書きですので、清書の際には削除頂いて結構です。

JICA による確認作業は今回をもってファイナルと致したく、ファイナルをご提出頂く際には、JICA 側のコメントに対応していない箇所（直接書き込みによる修正や上記②の JICA から提示している修正とは**内容的**に異なる修正をされている箇所）のみ、別紙でまとめる形でご提示いただけると幸いです（上記①に関しては、英語における言葉の選択については、お任せします。内容的に更なるご検討をお願いしている箇所が数か所あるので、その場合にはどのような対応をおとりになったかをご提示ください。またその他、英語の微修正箇所等は、特にご提示いただかなくて結構です)。

２．Terminology

１）Time for Completion 及び Defect Notification Period

Time for Completion →until issuance of the Taking-Over Certificate

Defect Notification Period→throughout the execution of the Contract

とそれぞれ修正 Time for Completion、Defect Notification Period で文脈上よいと思われるものもあり、そうしたものはそのままにしてあります。

1.4.8 において、Unless otherwise stated in JSSS or in the Particular Safety Specification, the Contractor shall comply with the requirements of JSSS throughout the execution of the Contract と規定した上で、下記の項目については TOC 発行時点ででよいものとして明記

- 1.27 Contractor's Safety Committee and Regular Safety Meetings
- 1.28 Engineer's Regular Safety Meetings
- 1.29 Project Safety Committee

- 2.1.7 Monitoring and Record

2）General と Generally

Clause レベルのタイトルで General と Generally が混在している。

3.1.1 及び 3.2.1 を Generally から General に修正し、General に統一しています。

但し、「○○ Generally」の様に何か具体的なものを冒頭においている場合には Generally のままにしてあります（例 6.1.1　Design and Provision of Temporary Works Generally）

3）Works と work

混在しているので一部修正した箇所があります。

4）Subcontractor

大文字で始まる場合と小文字で始まる場合が混在していたので、大文字で統一しています。

5）no risk

Risk は消えることはないので、no risk とは言えない。to prevent ….といった表現に適宜修正しています。以下が関連条項。

- 4.3.13
- 4.5.1(3)
- 6.7.7(5)
- 6.8.4(2)
- 6.8.4(3)
- 7.6.2 (1)
- 10.6.2(5)

6）all Contractor's Personnel

単に all Contractor's Personnel と言っている個所で、文脈上必ずしも全部の Contractor's Personnel に要求できない・することが適当ではない場合があるので、適宜修正

例）2.4.5（2）　全ての要員が全てのシグナルに精通する必要はないので、下線部を追加

The Contractor shall ensure that all Contractor's Personnel understand and comply with the signals relating to their assigned work task.

その他、2.5.11（5）、4.3.1（3）、7.2.2（2）を修正

7）Laws

GC 上の定義（Laws は法律・政令、その他を含む広い概念）に鑑み、必要に応じて以下の修正を加えています。

1.4.5(4)

laws を Laws に修正

3.2.3(10)、6.7.4、

Laws and regulations of the Country を→Laws of the Country と修正

8）Clause と Subclause

文中で用いられている Clause と Subclause という言葉について、必ずしも文脈と合致していないと思われる部分にコメントを付しておきましたので確認願います。

9）HSO or the HSO

HSO に the が付いている場合とない場合があるようなので、統一をお願いします。

10) Falsework

Falsework に s が付いている場合とない場合があるようですので再度確認願います。

11）Formwork

Formwork の頭文字が大文字の場合と小文字の場合の使い分けを再度確認願います（特に 9 章）

12）6.4.4 に出てくる ladders は全て potable ladders にした方がよいのではないでしょうか？ご検討下さい。

3. 10 章の Dive Safety Plan

ドラフトファイナルにおいて、前回のバージョンと比較して Dive Safety Plan の記述をかなり拡充していただいていますが、以下の 2 点に関して違和感があったので、大きく修正しています。

① Diving についてだけ、Bid Stage、Commencement、Particular と 3 種類の Safety Plan を要求していること。

② Particular については、ドラフトファイナルで頂いていた記述を見ると、個々の Diving Operation 毎に提出することを求めているように思えるが(10.2.1(2))、Diving Operation の定義と合わせ読むと、例えば「同じケーソンに関する作業をす

るのに、午前と午後で Diving を 2 回に分けてやるときには、午前で 1 回、午後にも 1 回、それぞれの Diving Operation 事に Safety Plan を提出する」ようなことを意味しているようにも読み取れ、それはさすがにやりすぎのように見える。

上記の事情から、Bid Stage、Commencement に関しては、それぞれの段階での全体の Safety Plan に Diving のことも記述することを求める記述にしてあります。また、個別の Diving Operation に関する Safety Plan については一日の Diving 作業に関する記載をまとめて「前日までに提出する」ことで記載を修正し、名称も Dive Safety Schedule としています（10.2.4（1）の修正をご覧ください)。

JICA comments 1) Sentences in shading in blue colour is mandatory revision, 2) Those in yellow colour is for MD's review and discussion, and 3) Those in no colour are explanation to NK by JICA. 4) Those in grey colour is NK's proposal, typo.

For Final by JICA/NK

JICA STANDARD SAFETY SPECIFICATION FOR PROJECT IMPLEMENTATION UNDER JAPANESE ODA

Japan International Cooperation Agency (JICA)

30 June 2020

Prepared: NK
Issue: DFR1
Date: 30/06/2020

ACKNOWLEDGEMENTS

JICA have referred to other publications during the preparation of this document and parts of such other publications have been used in the preparation hereof. JICA acknowledges and gives credit to these sources/publications which include:

1) Japanese Acts, Orders and Ordinances including:

Industrial Safety and Health Act

Order for Enforcement of Industrial Safety and Health Act

Ordinance on Industrial Safety and Health

Safety Ordinance for Cranes

Ordinance on Safety and Health of Work under High Pressure

Ordinance on Prevention of Anoxia, etc.

Ordinance on Prevention of Hazards Due to Dust

Explosives Control Act

Order for Enforcement of Explosives Control Act

Ordinance on Explosives Control

2) OSHA Standard Part 1926 Safety and Health Regulations for Construction", as written in Code of Federal Regulation (29 CFR) and published by the Occupational Safety and Health Administration, U.S. Department of Labor.

3) Construction (Design and Management) Regulations 2015, published by the UK Health and Safety Executive.

4) Conditions of Contract for Construction for Building and Engineering Works Designed by The Employer (Multilateral Development Bank Harmonised Edition June 2010) published by Fédération Internationale des Ingénieurs-Conseils (FIDIC)

DISCLAIMER

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JICA STANDARD SAFETY SPECIFICATION (JSSS)

Table of Contents

CHAPTER 1: GENERAL REQUIREMENTS

~~The following are presently excluded and will be covered in JSSS Second Edition:~~ (JC1)

~~Chapter 11: Railway Works~~

~~Chapter 12. Road Works~~

~~Chapter 13. Bridge Works~~

~~Chapter 14. Tunnelling Works~~

~~Chapter 15. Dam Works~~

~~Chapter 16. Demolition and Alteration Works~~

JC1: 現時点では未定のため削除とします。

Not yet determined preparation of these, so deleted.

CHAPTER 1: GENERAL REQUIREMENTS

1.1 ~~Safety Declaration~~ SAFETY DECLARATION (JC2)

JC2: 2 章以降との横並びをとる意味で、Section レベルでのタイトルは全て大文字にする。以下、1 章を通じて同じ

To make style of titles of Sections consistent in JSSS, all titles of Sections in Chapter 1 shall be capitalized.

1.1.1 Adopting the slogan “SAFETY FIRST”, the Contractor shall proactively aim to achieve “Zero-Accident” by applying the highest achievable standards of health and safety management.

1.1.2 A Safety Declaration shall be submitted with the Bid, declaring the Bidder’s commitments and obligations, in accordance with JSSS Annex 1.3 [*Additional Contractor Forms*], Form JSSS/BSD - Bidder’s Safety Declaration~~,~~ .

1.2 GENERAL REFERENCE NOTES

1.2.1 For Definitions, abbreviations and standards contained in JSSS, refer to JSSS Annex 1.1 [*Definitions and Abbreviations*].

1.2.2 The following further general reference notes apply to the content of JSSS:

(1) References to “Bid” and “Contract” and to “Bidder” and “Contractor” shall be interchangeable according to the context of their use. “Bid” and “Bidder” shall become “Contract” and “Contractor” after the Contract Agreement has been executed.

(2) References to “Laws of the Country” shall include all safety standards under such Laws and shall also include references to Laws of any other jurisdiction ~~that may be stated in the Contract Data~~. (JC3 and JC4)

JC3: GC1.1.6.5 では Contract Data に記載するような立て付けにはなっていない。PSS に記載するようにすべき。

GC 1.1.6.5 does not specify this in the Contract Data. It should be mentioned on the PSS.

JC4: deleted.

NK: To MD, do we add this to the PSS? I think this is general requirements, so we can delete as references to Laws of any other jurisdiction is included in the Laws.

(3) Any reference to “Safety” unless otherwise evident from the text shall also be construed as reference to “Health and Safety”.

(4) Any reference to academic, educational or vocational qualification within this document, shall mean a valid qualification demonstrated by a certified true copy of a diploma, degree, or other official certification issued by an acknowledged educational institution of the Country or an equivalent alternative certification issued by an acknowledged educational institution of another country.

(5) Unless otherwise stated in JSSS, any reference in JSSS to the Site, shall also be deemed to include other places (if any) where the Contractor intends to execute or is executing the Works including for example offsite storage, fabrication and assembly areas and any other working areas outside the Site boundary.

(6) JSSS requires the provision of safety management services and facilities by the Contractor to Contractor’s Personnel and unless otherwise stated this shall also be deemed to include the provision by the Contractor of the same services and facilities (including for example training, accident response, healthcare, records, reports, control of hazards and risks, use of Temporary Works, and the like) to any ~~subcontractors~~ Subcontractor, suppliers and others for whom the Contractor is responsible including Employer’s Personnel and all other persons that are entitled to be on the Site. (JC5)

JC5: 大文字で始まる場合と小文字で始まる場合が混在していたので、大文字で統一しています。

There are head capital and small letters of Subcontractor and subcontractor. All subcontractor is replaced

with Subcontractor.

(7) Any reference in JSSS to "relevant authority" or "relevant authorities" shall mean one or more legally constituted public authorities that own or have legal jurisdiction over the work or property concerned.

(8) JSSS shall form a part of the Contract for the Works and therefore the definitions contained in the Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer, Multilateral Development Bank Harmonised Edition June 2010, General Conditions together with the Particular Conditions Part A - Contract Data and Part B - Specific Provisions, as applied to that Contract, apply equally and are used in JSSS.

Unless specified otherwise or instructed by the Engineer, the issue of JSSS to be used for the Contract shall be that which is applicable at the Base Date.

1.3 INCORPORATION OF JSSS INTO THE CONTRACT

1.3.1 JSSS shall form a part of the Safety Specification which, in turn forms a part of the Specification. The Safety Specification shall have priority over the other parts of the Specification in respect of health and safety matters. Within the Safety Specification, the Particular Safety Specification shall have priority over JSSS.

1.3.2 The Annexes to Chapter 1: General Requirements shall be read and construed as an integral part of JSSS.

1.4 COMPLIANCE WITH JSSS AND OTHER REGULATIONS

1.4.1 JSSS specifies the minimum health and safety requirements to be complied with by the Contractor throughout the execution of the Works.

1.4.2 JSSS shall not limit the Contractor's statutory or regulatory duties and responsibilities under the Laws of the Country and/or the specific health and safety requirements of the Contract.

1.4.3 The Contractor shall comply fully with the requirements of the Safety Specification.

1.4.4 If there are no or insufficient safety provisions in the Laws of the Country, in JSSS or in the Particular Safety Specification for the particular part of the Works, the Contractor shall propose suitable internationally acceptable safety regulations for the Engineer's consent.

1.4.5 Specified Standards

(1) Unless otherwise instructed by the Engineer, a reference to any standard (hereinafter deemed to include specified safety regulations or codes) shall mean a reference to the latest issued edition of that standard as at the Base Date ~~of the Contract~~. (JC6)

JC6: deleted.

(2) ~~Any standard specified in JSSS may be substituted with an equivalent alternative which, unless stated otherwise, shall mean that an alternative is acceptable but only after the Contractor has submitted a formal request with supporting particulars to the Engineer and has obtained the consent of the Engineer who shall give such consent only if, in his opinion, the alternative is internationally acceptable and that it provides an equivalent or higher standard than the standard specified.~~ (JC7)

Standards specified in JSSS can be substituted with an equivalent alternative in following manner;

(a) The Contractor submits a formal request with particulars to the Engineer, and

(b) The Engineer gives a consent to the substitution,

only if he considers such alternative is internationally acceptable and equivalent or higher than the standard in JSSS.

JC7: Non-native にわかりやすく、以下の通りとしてください。

To make for readers to easily understand (2), please replace (2) with the above.

NK: To MD, please review the above though JC comments to directly replace it with the JC sentences.

(3) Application of detailed parts of any standards specified in JSSS may be waived at the formal request of the Contractor, only if the Contractor justifies with supporting particulars that those detailed parts are not relevant to the Contract and the Engineer gives his consent to such Contractor's request.

(4) Where JSSS refers to the standards of other countries, such reference is only to the technical requirements contained in such standards and not to any related ~~l~~ Laws (JC8) ~~or~~ legal enforceability (JC9) of any of those ~~other~~ (JC10) countries.

JC8: 7）Laws GC 上の定義（Laws は法律・政令、その他を含む広い概念）に鑑み、必要に応じて以下の修正を加えています。

Replaced with Laws (Head capital) as defined in GC.

1.4.5(4) laws to Laws

3.2.3(10) and 6.7.4 Laws and regulations of the Country to Laws of the Country

JC9: Legality?

NK: To MD, please reply to this.

JC10: deleted "other".

1.4.6 Where there is any reference to OSHA and unless otherwise evident from the text, the words "team leader", "~~on-site~~ supervisor", "~~on-site~~ supervision", "~~field~~ superintendent", ~~"work chief"~~ and the like shall be collectively construed as reference to the appropriate member of the Contractor's Personnel~~, a~~. Any reference to the "safety and health manager of the Contractor" and the like shall be construed as reference to the HSO and "The construction plan and safety and health plan", shall be construed as the "Method statement" and "Safety Plan", respectively. (NK1)

NK1A: I asked already those terms last time whether they are used in OSHA, and MD replied they are used in both regulations of OSHA and reference document of OSHA. I checked again those terms in regulations of OSHA and propose to use those used in only regulations of OSHA.

NK1A: MS is added for the construction plan.

1.4.7 If any ambiguity or discrepancy is found in or between the various Chapters of JSSS or any reference documents and JSSS, the Engineer shall issue any necessary clarification or instruction. For the purposes of interpretation:

(1) The requirements of Chapter 1: General Requirements, shall prevail over the requirements of other Chapters of the document.

(2) JSSS Chapters 2 to 6 contain requirements which are of general application and the content of each shall apply to content of all others unless otherwise stated or unless the context is otherwise clear.

1.4.8 Unless otherwise stated in JSSS or in the Particular Safety Specification, the ~~The~~ Contractor shall comply with the requirements of JSSS throughout ~~the Time for Completion and the Defects Notification Period~~ the execution of the Contract.

~~Unless otherwise specified in the Particular Safety Specification, the Contractor's obligations to provide temporary services and facilities shall finish at the end of the Time for Completion.~~ (JC11)

JC11: (Japanese)

Time for Completion 及び Defect Notification Period

Time for Completion →until issuance of the Taking-Over Certificate

Defect Notification Period→throughout the execution of the Contract

とそれぞれ修正 Time for Completion、Defect Notification Period で文脈上よいと思われるものもあり、そうしたものはそのままにしてあります。

1.4.8 において、Unless otherwise stated in JSSS or in the Particular Safety Specification, the Contractor shall comply with the requirements of JSSS throughout the execution of the Contract と規定した上で、下記の項目については TOC 発行時点まででよいものとして明記

1.27 Contractor's Safety Committee and Regular Safety Meetings

1.28 Engineer's Regular Safety Meetings

1.29 Project Safety Committee

2.1.7 Monitoring and Record

(English)

Time for Completion and Defect Notification Period

Time for Completion → (revised to) until issuance of the Taking-Over Certificate

Defect Notification Period → (revised to) throughout the execution of the Contract

Revised as above.

Where Time for Completion and Defect Notification Period are necessary in the sentences, they are left as they are

1.4.8 is specified as Unless otherwise stated in JSSS or in the Particular Safety Specification, the Contractor shall comply with the requirements of JSSS throughout the execution of the Contract

The following Chapters are specified till issues of TOC.

1.27 Contractor's Safety Committee and Regular Safety Meetings

1.28 Engineer's Regular Safety Meetings

1.29 Project Safety Committee

2.1.7 Monitoring and Record

1.4.9 The Contractor shall fully inform his personnel, his Subcontractor's, suppliers and ~~sub-~~consultants and all other parties who are associated with the Works of the existence, content, purpose and objectives of JSSS. (NK2)

NK2: deleted.

1.5 CONTRACTOR'S SAFETY MANAGEMENT SYSTEM

1.5.1 The Contractor shall institute a health and safety management system in accordance with ISO 45001-~~or an equivalent alternative~~. (JC12)

JC12: deleted.

1.5.2 Alternatively, the Contractor may institute his own safety management system and regularly conduct audits in accordance with JSSS 1.17 [*Compliance Monitoring and Auditing*].

1.5.3 The safety management system shall be proposed as a part of the Contractor's Safety Plans to the Engineer for his consent.

1.6 CHECKING AND VALIDATION OF SUBMISSIONS

1.6.1 I~~n accordance with GC 4.9 [*Quality Assurance*] the Contractor shall demonstrate compliance with the Contract by including evidence of his own internal prior review, check and approval or agreement of all submissions including Safety Plans, Method Statements, Temporary Works (such as drawings, designs and calculations) and of all supporting documents, through written confirmation and signature of each of the Contractor's responsible personnel, including for example the Contractor's Representative, HSO, Temporary Works coordination, design and~~

~~supervision staff and any independent checkers as appropriate.~~ (JC13)

1.6.1 The Contractor shall demonstrate that his internal procedures for checking and validation of all submissions properly function through written confirmation and signature of each of the Contractor's responsible personnel, including for example the Contractor's Representative, HSO, Temporary Works coordination, design and supervision staff and any independent checkers as appropriate. This requirement relates to all submissions for the safety, including Safety Plans, Method Statements, Temporary Works (such as drawings, designs and calculations) and of all supporting documents.

JC13: 例によって文章が長すぎて Non-native に分かりにくいです。

The sentence is too long as well as others for non-native readers to understand.

Replaced with the above.

1.7 CONTRACTOR'S SAFETY PLANS

1.7.1 The Contractor shall prepare Safety Plans for the Works showing the Contractor's proposed health and safety management policies, systems and plans specifically prepared for all parts of the Works, ~~the Site and other places (if any) where the Contractor intends to execute the Works~~. (JC13)

1.7.2 The Safety Plans shall set out or refer to all the health and safety requirements:

(1) That are stated in JSSS.

(2) That comply with the Contractor's health and safety obligations under the Laws of the Country and the Contract.

(3) That are necessary to effect and maintain a healthy and safe working environment for all Contractor's Personnel.

1.7.3 The Contractor shall be required to prepare and submit the Safety Plans principally at three stages:

(1) Bid Stage Safety Plan (Outline Overall Safety Plan).

(2) ~~Commencement Stage~~ Baseline (JC14)Safety Plan (Updated Bid Stage Safety Plan).

JC14: FIDIC では Baseline を使用することが普通。Baseline Safety Plan と呼称

Baseline is generally used in FIDIC. It should be replaced with Baseline Safety Plan.

NK: Baseline programme, schedule, cost 等で使用されています。Safety Plan は、入札時の安全計画が基準ですが、指定とおりへ変更します。

Baseline is used for programme, schedule, cost, etc. Safety Plan should be based on the Bid Stage Safety Plan. NK will replaced it with the term of JC.

(3) Particular Safety Plans ~~(Updated separate plans if necessary for particular parts of the Works.~~ (Separate plans or updated Baseline Safety Plan).

1.7.4 The Safety Plans shall ultimately provide an accurate and comprehensive description of the Contractor's arrangements to ensure that health and safety management is maintained at a high level.

1.7.5 Submission of any Safety Plan and inclusion in the Bid or Contract or any further submission to the Engineer, shall not place any limit upon the Contractor's obligations. Any additional requirements as determined by the Contract or consequent to instructions of the Engineer or by requirements at the Site, shall be complied with by the Contractor under his own responsibility.

1.7.6 Bid Stage Safety Plan:

(1) This shall be an outline plan, containing indicative content for all of the subjects listed in JSSS Annex 1.2 [*Content of Bid Stage Safety Plan*].

(2) The plan shall demonstrate that the Bidder has a clear understanding of the health and safety requirements for the Works and contain clear and sufficient detail of each item to indicate the Bidder's intentions, so that this can be understood and properly evaluated.

1.7.7 Baseline Safety Plan

(1) This shall be submitted within twenty-eight (28) days after the Commencement Date ~~and not less than twenty-eight (28) days before commencing any work at the Site~~. (JC15)

JC15:These double limitations are sometimes very difficult or almost impossible to follow. If a contractor intends to erect a flag pole at the site on the commencement day, he must have submitted the Baseline Safety Plan 28 days before the Commencement day.

NK: JC is understandable, so deleted as commented. However, the Contractor will start preparation works such as offices, accommodation, access roads, etc. by Subcontractors locally employed. It is necessary to additionally specify about such preparation works planned before submission of the Baseline Safety plan.

(2) This shall be an updated Safety Plan for the whole of the Works showing the Contractor's proposed health and safety management policies, systems and plans etc. specifically prepared for all parts of the Works, ~~the Site and other places (if any) where the Contractor intends to execute the Works.~~ (JC16)

JC16: deleted.

(3) ~~The Baseline Safety Plan~~ This (NK3) shall be based upon the Bid Stage Safety Plan, further developed as necessary by the HSO to provide a comprehensive overall Safety Plan demonstrating the Contractor's intended compliance with the Contract.

NK3: replaced.

1.7.8 Particular Safety Plans

(1) These shall be prepared as necessary to suit changing circumstances or conditions at the Site, or following the issue of ~~later~~ (JC17)Method Statements, or where considered necessary by the HSO or when required by the Engineer.

JC17: deleted.

1.7.9 Procedures for Submission and Review

(1) The Contractor shall submit the Baseline Safety Plan and the Particular Safety Plans showing details of the health and safety arrangements which the Contractor proposes to adopt for the execution of the Works or any part of the Works.

(2) The Contractor shall submit:

(a) ~~the~~ The Baseline Safety Plan in accordance with JSSS 1.7.7 [*Baseline Safety Plan*]; and

(b) The Particular Safety Plans by the date fourteen (14) days prior to the commencement of each particular part of the Works where sufficient detail has not been included in the Baseline Safety Plan and/or within fourteen (14) days after the date of the Engineer's request.

(3) Requirements for response (if any) by the Engineer and any re-submission by the Contractor and, shall be as follows:

(a) The Engineer may review the Safety Plans and may give notice of non-compliance to the Contractor stating the extent to which the Safety Plan does not comply with the Contract. Within fourteen (14) days after receiving any such notice the Contractor shall rectify any non-compliance and resubmit to the Engineer;

(b) If the Engineer gives no such notice of non-compliance for the original Safety Plan within twenty-one (21) days of the date of receipt or for the resubmitted within fourteen (14) days of receipt, the Contractor shall proceed in accordance with the Safety Plan subject to complying with his other obligations under the Contract; and

~~(c) For Contractor resubmissions following receipt of a notice of non-compliance, the Engineer may give notice to the Contractor stating the extent to which the resubmission does not comply with the Contract. Within fourteen (14) days after receiving this notice the Contractor shall rectify such non-compliance. If the Engineer gives no further notice of non-compliance within fourteen (14) days of the date of receipt of the resubmission, the Contractor shall proceed in accordance with the resubmitted Safety Plan subject to his other obligations under the Contract.~~ (JC18)

JC18: deleted.

~~1.7.10 The Contractor shall, as stated in JSSS and as the Engineer may reasonably require, maintain records and make reports in compliance with the applicable health and safety regulations and Laws) concerning the health and safety of any persons entitled to be on the Site.~~

The Contractor shall maintain records and make reports in accordance with JSSS and the applicable health and safety regulations, and further comply with any reasonable requests by the Engineer (if any). (JC 19)

JC19: revised.

1.7.11 Compliance with the Safety Plan and JSSS shall not relieve the Contractor from any duty, obligation or responsibility under or in connection with the Contract.

1.7.12 The Contractor shall also consider the opinions of his workers (JC20) ~~and other Contractor's Personnel~~ (JC21) in preparing Safety Plans or updated Safety Plans.

JC20: How about to change these to "take consideration of the opinions of his workers in …"?
NK: To Md, review this proposal.

JC21: deleted.

1.8 RISK ASSESSMENT

1.8.1 In performing risk assessments, the Contractor shall find and correct all potential risks and hazards primarily by trying to eliminate or reduce such risks and hazards through making feasible changes in working conditions rather than relying on PPE.

1.8.2 The Contractor shall fully inform ~~all~~ (JC22) Contractor's Personnel of all hazards and risks on the Site.

JC22: deleted.

1.8.3 The procedural flow of risk assessment shall be as follows.

(1) Identifying hazards.

(2) Evaluating risks.

(3) Determining measures of risk reduction or elimination.

1.8.4 The procedural flow for risk reduction measures shall be as follows with earlier listed items having higher priority:

(1) Removal of hazards such as eliminating dangerous methods of construction.

(2) Changing to a safer construction method and alternating to low risk processes, operations, materials or equipment.

(3) Engineering measures.

(4) Management measures including improving skills with additional training.

(5) Use of PPE.

1.9 CONTRACTOR'S METHOD STATEMENTS

1.9.1 The Contractor shall prepare Method Statements for all parts of the Works with details of the

arrangements and methods which the Contractor proposes to adopt for the execution of the Works ~~and any parts of the Works~~. (JC23)

JC23: deleted.

1.9.2 Method Statements shall be developed taking account of the results of risk assessment in accordance with JSSS 1.8 [*Risk Assessment*] and include details of all Permanent Works and Temporary Works with supporting documents such as:

(1) Studies, investigations and designs.

(2) Structural calculations and any other calculations.

(3) Specifications and technical details.

(4) Proposed construction procedure, sequence and method.

(5) Construction resources including superintendents, workers, Operation Leaders and Contractor's Equipment.

(6) Inspection and monitoring plan.

1.9.3 ~~The preparation of Method Statements shall indicate that the Contractor has put~~ The Contractor shall demonstrate in the Method Statements that he has put (JC24) internal procedures in place to encourage the systematic approach to performing the Works ~~and~~ (NK4) in an efficient, safe and environmentally compliant manner.

JC24:revised.
NK4: deleted. To MD, please review this.

1.9.4 ~~Whenever required by the Engineer, the~~ The Contractor shall submit Method Statements showing details of the arrangements and methods which the Contractor proposes to adopt for the execution of any part of the Works. ~~The Contractor shall submit the requested information within fourteen (14) days of the date of the Engineer's request.~~ Whenever the Engineer requires further information, the Contractor shall submit the required information within fourteen (14) days of the request. (JC25)

JC25:revised.

Requirements for submission by Contractor and response (if any) by the Engineer to Method Statements, shall be as follows:

(1) The Engineer ~~may~~ reviews the Method Statements and ~~may~~ gives (JC26)notice of non-compliance to the Contractor stating the extent to which the Method Statements do not comply with the Contract. Within fourteen (14) days after receiving any such notice the Contractor shall rectify any non-compliance and resubmit to the Engineer.

JC26:revised.
NK: This "may" is most important and essential part in JSSS as seriously discussed between JICA and NK.
1.7.9 (3) specifies (a) The Engineer may review the Safety Plans and may give notice … 1.9.4 (1) shall be same as 1.7.9.
To MD, please review NK opinion.

(2) If the Engineer gives no such notice of non-compliance for the original Method Statement within twenty-one (21) days of the date of receipt or for the resubmitted within fourteen (14) days of receipt, the Contractor shall proceed in accordance with the Method Statement ~~subject to complying with his other obligations under the Contract~~. (JC27)

JC27:deleted.

~~(3) For Contractor resubmissions following receipt of a notice of non-compliance, the Engineer may give notice to the Contractor stating the extent to which the resubmission does not comply with the Contract. Within fourteen (14) days after receiving this notice the Contractor shall rectify such non-compliance. If the Engineer gives no further notice of non-compliance within fourteen (14) days of the date of receipt of the resubmission,~~

~~the Contractor shall proceed in accordance with the resubmitted Method Statement subject to his other obligations under the Contract.~~ (JC28)

JC28: deleted (3).

(4) The Contractor shall submit a revised Method Statement whenever required by the Engineer or when any previous Method Statement for any part of the Works is inconsistent with actual conditions or requirements prevailing at the Site.

(5) The Method Statement shall be revised as necessary by the Contractor or the HSO and each revision shall be submitted promptly to the Engineer.

1.10 ENGINEER'S SAFETY REPRESENTATIVE

1.10.1 The Engineer may delegate his power and authority to any of his assistants at the Site who shall act as the Engineer's health and safety representative for the purpose of complying with any health and safety obligations under JSSS.

1.10.2 The terms of the appointment shall be in accordance with GC 3.2 [*Delegation by the Engineer*].

1.10.3 Whenever the term "Engineer" is used in JSSS this shall be deemed to include the resident engineer or any other assistant of the Engineer if so appointed in accordance with the terms of their delegated authority.

1.11 SAFETY COMPLIANCE INSTRUCTIONS FROM THE ENGINEER

1.11.1 Without affecting or diminishing the Contractor's responsibility under GC 4.1 [*Contractor's General Obligations*] and to ensure the adequacy, stability and safety of all Site operations and of all methods of construction, the Engineer shall observe the Contractor's performance at the Site and if in his opinion the Contractor is failing or has failed to carry out any part of the Works in accordance with the Safety Plan or other health and safety requirements of the Contract, the Engineer may give notice and instruct the Contractor to take necessary corrective and preventive measures to comply with the Contract.

1.11.2 If any part of the Works is considered by the Engineer to pose a danger and which in his opinion could result in an accident, the Engineer may instruct the Contractor to suspend such part of the Works under GC 8.8 [*Suspension of Work*] until the Contractor has advised the Engineer of the proposed corrective and preventive measures, obtained the Engineer's consent and implemented such measures to ensure that ~~no further risk exists~~ such danger is eliminated. (JC29)

JC29: no risk: Risk は消えることはないので、no risk とは言えない。to prevent ….といった表現に適宜修正しています。以下が関連条項。4.3.13, 4.5.1(3), 6.7.7(5), 6.8.4(2), 6.8.4(3), 7.6.2 (1), 10.6.2(5)

Because "risk" will not disappear, it cannot say to no risk. The expression is modified "to prevent…" as appropriate at the following relevant clauses: 4.3.13, 4.5.1(3), 6.7.7(5), 6.8.4(2), 6.8.4(3), 7.6.2 (1), 10.6.2(5)

1.11.3 If an accident has occurred, the Engineer may instruct the Contractor to suspend the Works or any part of the Works under GC 8.8 [*Suspension of Work*] and not allow resuming ~~w~~ Works ~~to recommence~~ (JC30) until such time as:

JC30: modified.

(1) The cause has been investigated and established (JC31) by the Contractor.

JC31: Is this term appropriate?
NK: MD will reply.

(2) Corrective and preventive measures have been formulated by the Contractor and proposed to the Engineer.

(3) The Engineer's consent has been obtained for such measures.

(4) The measures have been implemented to ensure that no such accident can (JC32) reoccur.

JC32: May?
NK: MD will reply.

1.11.4 The actions arising as above ~~irrespective of the issue of any action or instruction by the Engineer~~, shall be deemed to be the responsibility of the Contractor irrespective of the issue of any action or instruction by the Engineer. (JC33)

JC33: modified.

1.12 HEALTH AND SAFETY OFFICER AT THE SITE (HSO)

1.12.1 ~~For the purposes of interpretation under JSSS, the reference to "accident prevention officer at the Site" in GC 6.7[*Health and Safety*], shall be construed as "Health and Safety Officer at the Site".~~ (JC34)

JC34: deleted.

1.12.2 Requirements for the HSO:

(1) The Contractor shall assign the HSO ~~upon~~ at the Site ~~of the Works~~, (JC35) on or before the Commencement Date.

JC35: modified.

(2) The Contractor shall ensure that the Contractor's Personnel respect instructions issued by HSO in the health and safety aspects. (JC36)

JC36:added.

(2) (3) If the named person is for any reason unavailable or if the appointed person fails to act as HSO and is removed from the Site ~~of the Works under GC 6.9 [*Contractor's Personnel*], or if the person resigns and/or leaves the employment of the Contractor at the Site,~~ the Contractor shall submit the name and particulars of a suitable and equally experienced and qualified replacement to the Engineer for his consent. (JC37)

JC37: deleted.

(3) (4) The HSO shall be an employee of the Contractor or a specialist health and safety consultant and unless otherwise specified in the Particular Safety Specification, the HSO shall be assigned full time upon the Works ~~and responsibilities, authority and duties shall be in accordance with GC 6.7 [*Health and Safety*].~~ (JC38)

JC38: deleted.

(4) (5) The Contractor shall not revoke the appointment of the HSO or appoint a replacement without the prior consent of the Engineer.

~~(5) The HSO shall possess appropriate educational qualification for such position and also (if so required by the Laws of the Country) shall be licensed or registered in the Country and perform such duties as are legally mandated.~~ (JC39)

(7) The HSO shall possess appropriate educational qualification for such position and (if so required by the Laws of the Country) shall be licensed or registered in the Country and perform such duties as are legally mandated.

JC39: modified.

(6) (6) The HSO shall where possible be fluent in the ruling language of the Contract and also the language for communications stated in the Contract as defined in GC 1.4 [*Law and Language*]~~, i~~. It (NK5) is acceptable for the HSO to use a translator for either or both of these languages.

NK5. Revised. MD, please review this.

(7) (8) Where there is no ~~legal~~ requirement under the Laws of the Country ~~and unless otherwise specified in the Particular Safety Specification~~, the HSO shall have appropriate academic, educational or vocational qualification such as: (JC40)

JC40: deleted.

(a) an International Diploma issued by the National Examination Board in Occupational Safety and Health (NEBOSH) in UK; or

(b) a ~~C~~certification (JC41) as a Certified Safety Professionals (CSP) by the Board of Certified Safety Professionals (BCSP) in USA; or

JC41: modified.

(c) an equivalent alternative internationally recognised qualification covering health and safety and risk management.

(8) (9) Unless otherwise specified in the Particular Safety Specification, the HSO shall also have minimum five (5) years' work experience in construction of which minimum two (2) years shall be in health and safety management and whom the Contractor considers is qualified and able to perform the duties subject to receiving the consent of the Engineer.

1.12.3 Supporting Personnel

(1) The Contractor shall also appoint such further supporting personnel as the HSO may from time to time deem necessary or as may be instructed by the Engineer, to permit the HSO to perform his duties.

(2) Such further supporting personnel may include Operation Leaders and/or other senior specialist and qualified Contractor's Personnel.

(3) Irrespective of any such appointment the HSO shall remain singularly responsible for the actions of such supporting personnel in terms of health and safety management.

(4) Any reference in JSSS to the HSO performing inspections or the like for the health and safety aspects of any parts of the Works, shall be understood to include any inspections performed by any of these supporting personnel on behalf of the HSO and for which the HSO shall remain responsible.

(5) The HSO shall prepare an internal procedure for the management of his supporting personnel, to ensure that:

(a) Supporting personnel are made aware of the requirements for any inspection and the details thereof;

(b) Supporting personnel immediately advise the HSO of any unsafe conditions with recommendations to prohibit the start or to stop or to change safety practices for the particular work; and

(c) Communications and submissions between HSO and supporting personnel are efficient, timely and clear.

Following implementation and compliance with the above procedure, the HSO shall sign all inspection records as if the inspection has been carried out by the HSO.

(6) Where the Works or any part of the Works is to be performed in shifts or in excess of normal working hours, or over an extensive working area or where major works are being undertaken simultaneously, or like circumstances, the Contractor shall appoint additional qualified supporting personnel for the HSO all as necessary to ensure that the HSO is always able to perform his duties efficiently and effectively and so that health and safety management is not adversely affected.

1.12.4 Inspections

(1) The HSO shall be responsible for ensuring:

(a) That all working areas are inspected on a regular basis (at least once every working day or as otherwise required by JSSS) to detect if any unsafe practices, works or conditions exist and that all required safety measures are in place;

(b) That if such unsafe practices, works or conditions are found to exist, then to immediately issue instructions to all affected persons and immediately implement corrective measures in cooperation with such personnel or if this is not possible then to temporarily stop all construction activity on that part of the Works until such corrective action has been taken; and

(c) That all inspection requirements of JSSS are complied with including the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

(2) Any site inspections attended by the HSO, may also include the attendance of the Engineer at the option of the Engineer.

1.13 HSO - SCOPE OF DUTIES AND AUTHORITY

1.13.1 The HSO shall devote his full time and attention to maintaining health and safety upon the Works and protecting against accidents.

1.13.2 The particular scope of duties and authority of the HSO shall cover (but shall not be limited to) the following:

~~(1) Health and Safety Management Work:~~ (JC42)

JC42: (2)がないので（１）は不要

Because there is no (2), (1) is not necessary.

(a) Preparation and submission of Safety Plans, implementation, evaluation, improvement and revision thereof;

(b) Preparation of monthly schedule of health and safety management activities, informing the Contractor's Personnel;

(c) Regular (daily) inspections of the Works at the Site to ensure the Contractor's compliance with the Safety Plan, ~~Instructions and other measures;~~ (JC43)

(d) Temporarily stopping the Works or any part of the Works following any accident or where the HSO considers it unsafe to continue or where there is unsafe behaviour or practices of the Contractor's Personnel or any non-compliance with the Safety Plan ~~Instructions and other measures~~; (JC43)

JC43: deleted.

(e) Temporarily stopping the Works or any part of the Works where the Engineer so instructs in accordance with JSSS 1.11 [*Safety Compliance Instructions from the Engineer*];

(f) Investigating accidents, establishing cause, formulating and implementing preventive measures to avoid risk and prevent reoccurrence;

(g) Preparing proposals, reporting and consulting with the Engineer, especially when an accident occurs or any risk or hazardous situation is likely;

~~(h) Appointment of further supporting personnel (refer to JSSS 1.12.3 [*Supporting Personnel*]);~~ (JC44)

JC44: deleted.

(i) Instructing ~~and training~~ (JC45) Operation Leaders in the health and safety aspects of their work including requirements for inspection and confirmation of results to HSO;

JC45: deleted.

(j) Instructing the Contractor's Personnel to take improvement measures for maintaining health and safety and preventing accidents;

(k) Assisting with the selection and assignment of workers and other Contractor's Personnel, including ascertaining the physical and mental health, age and capability in consideration of the nature of work to be carried out;

(l) Planning and implementation of various training and education implementation plans;

(m) Creating and implementing procedures for monitoring and maintaining accident and safety statistics, including fatalities, lost time records and near-miss cases;

(n) Preparing regular internal and external reports on health and safety activities; and

(o) Hazard prediction activity.

1.14 PROCEDURE FOR RESUMING THE WORKS

1.14.1 ~~If the Engineer has issued an instruction under JSSS 1.11 [*Safety Compliance Instructions from the Engineer*] or if the HSO has temporarily stopped the Works or any part of the Works in accordance with JSSS 1.13 [*HSO – Scope of Duties and Authority*]~~ If any part of the Works have been suspended due to safety reason whether the Engineer has instructed a suspension under JSSS 1.11 [Safety compliance Instructions from the Engineer] or otherwise, then, unless otherwise instructed by the Engineer, the procedure for resuming the Works or any part of the Works, shall be as follows:-(JC45)

JC46: revised.
NK: To MD, I cannot read the above, smoothly. Please review it.

(1) The Contractor (represented by the HSO) shall investigate and establish the cause, formulate preventive measures to ensure that the risk is avoided and accident cannot occur/reoccur.

(2) The Contractor (represented by the HSO), shall prepare and submit his proposal describing the investigation, cause and preventive measures to the Engineer.

(3) The Engineer may review the Contractor's proposal and may give notice of non-compliance to the Contractor stating the extent to which the proposal does not comply with the Contract. Within seven (7) days after receiving any such notice the Contractor shall rectify such non-compliance and resubmit to the Engineer.

(4) If the Engineer gives no such notice of non-compliance for the original proposal within seven (7) days of the date of receipt or for the resubmitted proposal within seven (7) days of receipt, the Contractor shall resume the Works or part thereof in accordance with the proposal ~~subject to complying with his other obligations under the Contract.~~ (JC46) by giving three (3) days' notice in writing of the resumption date.

JC46: deleted.

To be proactive, the Engineer may give consent at any stage within the above stated time scales.

(5) The Contractor resumes the Works or part of the Works on the due date.

(6) The Contractor verifies the effectiveness of the preventive measures and informs the Engineer.

(7) The Contractor carries out a risk assessment and revises the Safety Plan and Method Statements as necessary.

1.15 CONTRACTOR'S SAFETY MANAGEMENT ACTIVITIES

1.15.1 The Contractor shall faithfully implement the Safety Plan performing all necessary management activities to ensure total compliance.

1.15.2 In addition to the tasks of the HSO described above, the Contractor's health and safety management activities shall include (but are not limited to):

(1) Overall Safety Management Activities:

(a) ~~Arranging, chairing, attending meetings as described above and other internal Contractor meetings including~~ Instruction on safety matters in the Toolbox Meetings (TBM); (JC47)

(b) ~~Attending~~ p Pre-work meetings, pre-start meetings, schedule meetings and other internal meetings; and (JC47)

JC47: modified.

(c) Monitoring the implementation of the Safety Plan.

(2) Daily Safety Management of Contractor's Personnel:

(a) Instruction and management on health and safety at general morning meetings, pre-work meetings, TBM;

(b) Providing specific advice and instructions to all Contractor's Personnel on their assigned work tasks in advance of starting so that all workers are aware of the requirements of the Method Statements and Safety Plan including work place, scope, methods, ~~safety~~ (NK6) PPE, timing and safety procedures;

NK6: deleted.

(c) Instruction and management of traditional Japanese cleanliness safety campaigns known in Japan as:

5S ACTIVITIES where: Seiri = sorting, Seiton = tidying, Seiso = cleaning, ~~Seiketu~~ Seiketsu (JC48) = cleanliness and Shituke = discipline;

JC48: Seiketsu?
NK: Both are used in Japan. Seiketsu is in Hepburn Roman letters and frequently used in websites, so changed as above.

(d) Instruction and management of safety education and training;

(e) Instruction and management of all safety measures; and

(f) Site Safety Inspections.

1.16 JOINT SITE SAFETY INSPECTIONS

1.16.1 In addition to the HSO's own daily Site Safety Inspections, the HSO shall conduct regular Joint Site Safety Inspections with the Engineer. ~~Respective s~~ Safety staff of the both (JC49) may also attend.

JC49: modified.

1.16.2 Frequency of Joint Site Safety Inspections shall be at least once a week.

1.16.3 Where any safety risks are detected during the inspections, the Contractor shall take immediate action.

1.16.4 The Engineer may be invited or may choose to participate in the Contractor's daily site safety inspections which will then be deemed to be a Joint Site Safety Inspection.

1.16.5 The Contractor shall prepare a report of each Joint Site Safety Inspection and submit this to the Engineer within seven (7) days after the inspection. A further copy shall be included in the Contractor's monthly progress report.

1.17 COMPLIANCE MONITORING AND AUDITING

1.17.1 The HSO shall develop and implement systems to ensure that compliance with the Safety Plan is ensured. Such compliance shall be monitored efficiently and transparently at all times, for which purpose the Contractor shall:

(1) Create checklists for monitoring.

(2) Carry out regular and random inspections.

(3) ~~Monitor failed, unsafe or non-compliant conditions and analyse data to determine what measures are most effective~~ Analyse unsafe or non-compliance conditions and determine the effective measures (JC50) in ensuring safety and minimising accidents.

JC50: modified.

(4) Create storage and filing systems for the monitoring records.

(5) Copy safety information to the Engineer as may be necessary for the Engineer's file if so requested by the Engineer.

1.17.2 Safety inspections are intended to search for risks and hazards~~.~~ (JC51)which present a threat to safe working.

JC51: deleted.

1.17.3 The Contractor shall also carry out regular health and safety audits, to ascertain if the Contractor's Safety Plan and health and safety management systems are working by focussing basically on the following five questions:

(1) Does the Safety Plan cover all regulatory and construction industry best practice requirements?

(2) Are the Safety Plan requirements being met?

(3) Is there documented proof of compliance?

(4) Is health and safety training effective?

(5) Is the Contractor's health and safety management system working effectively?

1.17.4 The persons or team designated to conduct the audits should take a fact-finding approach to gather data and members shall be familiar with the Safety Plan and the nature of the Works.

1.17.5 The audit procedures shall be prepared by a senior member of the Contractor's head office health and safety ~~team~~ section (JC52) and shall require the consent of the Engineer.

1.17.6 The audit shall be headed by a senior member of the Contractor's head office health and safety ~~team~~ section (JC52).

JC52: revised.

1.17.7 ~~If so agreed by the Engineer, a~~ Audits (JC53) may be outsourced by the Contractor to a health and safety company subject to obtaining the consent of the Engineer.

1.17.8 The HSO may attend audits but only in an advisory capacity ~~and team members shall not be required or allowed to audit their own work~~. (JC53)

JC53: deleted.

1.17.9 The Contractor shall invite the Engineer to attend in the capacity of a witness ensuring that the audit is being carried out effectively and with a balanced, fair and non-biased approach.

1.17.10 The health and safety audits are primarily to check the effectiveness of the Safety Plan, the Contractor's health and safety personnel and the Contractor's health and safety management systems. The Audits shall not replace the regular health and safety inspections.

1.17.11 The audits shall be conducted at least twice every year and without giving notice to the Contractor's Personnel or others when any audit is to take place.

1.17.12 An audit report shall be prepared by the leader of the audit team, detailing the findings of the team and submitted to the HSO, with a copy to (JC54) the Engineer within seven (7) days after the audit. The report shall be signed by all attendees of the Contractor to certify their agreement to the content and to any recommendations for improvement.

JC54: added.

1.17.13 The HSO shall analyse the findings of the audit, revise the Safety Plan and change health and safety management practices as necessary to ensure the required improvement. The Engineer shall be fully informed of all such revisions and changes.

1.18 PROPER PLACEMENT OF CONTRACTOR'S PERSONNEL

1.18.1 To a varying extent, many types of construction works are inherently dangerous and accordingly the Contractor under his duty of care must ensure that risks arising from all such potential dangers are avoided and Contractor's Personnel consequently protected.

1.18.2 In compliance with GC 6.9 [*Contractor's Personnel*], the Contractor shall assign only those personnel who are appropriately qualified, skilled and experienced in their respective trades or occupations. Contractor's Personnel shall also be suitable and capable of performing the work tasks for which they are selected in consideration of their physical fitness, mental condition, age and capability, all shall be equipped with correct PPE, tools, equipment and safety equipment.

1.18.3 Workers and unskilled workers shall never be assigned to any work on Site on their own, all shall be assigned in groups and each work group must always include an Operation Leader to ensure compliance with the Contractor's safety regulations.

1.18.4 The correct grades and numbers of Contractor's Personnel shall be assigned to respective work tasks and reasonable times and durations and support facilities shall be afforded by the Contractor to promote the safe and effective discharge of duties.

1.18.5 The HSO shall countersign all records to certify his confirmation that each member of the Contractor's Personnel is appropriately qualified, skilled and experienced in their respective trades or occupations prior to their placement. These records shall be made available for inspection by the Engineer.

1.18.6 Suitability of Contractor's Personnel and their work assignment shall be assessed by the Contractor with the assistance of the HSO in consideration of:

(1) Work content and work environment.

(2) Educational or vocational qualifications, practical experience, skill training and eligibility for category, title, rank or position by virtue of their achieved and demonstrated capability.

(3) Physical and mental health condition upon commencement of employment and on a regular basis before daily work starts.

(4) Allocation of an achievable and safe work volume and time.

(5) Allocation of suitable work to older workers and also to workers under 18 in compliance with GC 6.21 [*Child Labour*].

1.18.7 If the Laws of the Country require operating, supervising or management staff or any other Contractor's Personnel to have a licence, particular academic, educational or vocational qualification, diploma, registration or certification for any of their services or operations at Site, the Contractor shall ascertain that all such Contractor's Personnel possess such documents.

1.18.8 The Contractor shall ascertain the authenticity and validity of licenses and all other documentation for Contractor's Personnel and if necessary shall independently test all personnel to ascertain that they do possess sufficient knowledge, academic, educational or vocational qualification, experience and skills.

1.18.9 The Contractor shall implement an identification (ID) pass system whereby all Contractor's Personnel carry ID passes with name, photograph, blood type, official ID number and statement of the skill and position for which the worker is qualified and assigned. This shall be clearly displayed by the person and be available for inspection and validation by the Engineer at all times. If any of the Contractor's Personnel is found not to have such valid ID for the position

upon which he is assigned, the Engineer will instruct that person directly to stop work immediately, contact the HSO immediately and instruct that the HSO resolves the situation without delay by immediately removing the offending person from the particular work being undertaken ~~and from the Site~~ (JC53) and assigning a suitable replacement, unless otherwise instructed by the Engineer.

JC53: deleted.

1.19 SAFETY TRAINING GENERALLY

1.19.1 The Contractor shall conduct health and safety education and training for all the Contractor's Personnel.

1.19.2 The Contractor shall describe in the Safety Plan the outline of the health and safety training plans describing participants, time, teaching materials, policy for selecting trainers, etc. In addition, the Contractor shall submit full details of all health and safety training to the Engineer for information before the start of any training.

1.19.3 Training shall be provided free-of-charge to all participants and conducted during normal working hours, all trainees shall be paid their normal wages during training and the Contractor shall bear all necessary associated costs and expenses.

1.19.4 Training shall be provided in a language which the persons to be trained fully understand (i.e. the language of the persons to be trained or the language for communications as defined in GC 1.4 [Law and language] as appropriate.

1.19.5 Training Personnel

(1) Trainers (which description shall include teachers and educators also) can be personnel employed by the Contractor or external trainers for whom the Contractor shall remain responsible, all experienced, academically, educationally or vocationally qualified and (if required by the Laws of the Country), formally registered as trainers, teachers and educators.

(2) All trainers shall be fluent in the language ~~of the persons to be trained~~. to be used in the training. Where necessary, proficient translators familiar with construction safety terms shall be provided by the Contractor. (JC54)

JC54: language of the persons というと第三国人（フィリピン人とか）を考えると複雑になってくる（タガログとか）。

It becomes complicate when we consider language of the persons who are from third countries such as Philippines speaking Tagalog., so modified as above.

(3) In case of absence of availability of suitable ~~personnel~~ trainers (JC55) in the Country, the Contractor shall mobilise personnel from other countries whom the Contractor considers possess the necessary academic, educational or vocational qualification, ability and experience, subject to receiving the advance consent of the Engineer. ~~In such case, proficient translators, familiar with construction safety terms shall be provided by the Contractor where necessary.~~ (JC56)

JC55: Trainer を海外から調達してくるという話ならば、このように修正。そうではなく、作業員一般を海外から調達してくるということならば、Training の話ではない。1.21.2 に関連の記述があるので、この（3）は削除。

In case trainers are mobilized from overseas countries, the modification is as above. If workers are moibilized from overseas countries, (3) is not appreciate and shall be deleted.

JC56: 言語の話は（2）にまとめる. Requirement regarding language is combined in (2).

1.19.6 Records of education and training

The Contractor shall create and maintain records of all trainees, showing full details of training subjects and their capability, achievements etc., and all shall be made available for the

inspection of the Engineer.

1.20 SAFETY INDUCTION TRAINING

1.20.1 Safety induction training shall be provided by the Contractor for all Contractor's Personnel, any ~~s~~Subcontractors, suppliers and others for whom he is responsible, ~~including the Employer's Personnel and all other persons who are entitled to be on the Site at the request of the Employer or Engineer~~ and if requested by the Engineer, the Employer's Personnel and/or other persons who are entitled to be on the Site. (JC57)

JC: 57: modified.

1.20.2 The safety induction training shall include classroom based training course and practical on-site demonstration, in which the (JC58) following subjects shall be covered:

JC58: Added.

(1) Responsible persons, chain of command and means of communication.

(2) Use of Contractor's Equipment, small tools and tackle, machinery, Temporary Works, Goods, materials; potential danger and required care.

(3) Working procedures generally.

(4) Inspections before starting and during execution of any work, reporting unsafe working conditions and equipment.

(5) Dangerous Work~~s~~; (JC59) General rules, locations, posting warning signs, precautions and general working requirements. Refer to JSSS 1.22 [*Dangerous Work*] for additional training requirements.

JC59: deleted.

(6) PPE and other safety devices; use, handling and care, reporting worn, damaged or defective equipment.

(7) Maintaining all working areas in an orderly, tidy and clean condition at all times.

(8) Accidents; action, evacuation and treatment, basic first-response medical aid, reporting.

(9) Firefighting; actions, precautions and control.

(10) Health and safety rules.

(11) Causes and prevention of diseases and conditions which may be injurious to health that may occur in relation to the work concerned.

(12) Emergency Response Plan; evacuation and calling list.

(13) Other related health and safety matters.

~~1.20.3 Practical on-Site demonstrations shall be included.~~ (JC60)

JC60: deleted.

1.21 SKILL TRAINING

1.21.1 The Contractor ~~is reminded of his obligations under GC 6.9 [*Contractor's Personnel*] which require that~~ shall ensure that all Contractor's Personnel shall be appropriately qualified, skilled and experienced in their respective trades or occupations in accordance with JSSS 1.18.2.(JC60)

JC60: revised.

1.21.2 The Contractor is also reminded of his obligations under GC 6.1 [*Engagement of Staff and Labour*] according to which the Contractor is encouraged, to the extent practicable and reasonable, to mobilize the local human resources with appropriate qualifications and experience. However, if the qualified, skilled and experienced Contractor's Personnel required

by the Contract is not available in the Country or not available in the numbers or of the standards of for the periods required, the Contractor shall:

(1) Source and assign upon the Works Contractor's Personnel (of at least Operation Leader and skilled worker status) from other countries, and/or

(2) Recruit candidates in the Country and train them to provide the skill required to properly perform their assignments.

This shall be in such numbers and for such periods as are necessary to maintain the required standards of performance, quality, health and safety throughout ~~the Time for Completion and Defect Notification Period~~ the execution of the Contract.. (JC61)

JC61: modified.

(1) The Contractor shall test and qualify such personnel and provide them with formal written confirmation of their training, testing and academic, educational or vocational qualification, with copies provided to the Engineer if so requested by the Engineer.

(2) Outline of such training shall be submitted with the Bid Stage Safety Plan. Details of the training shall be further developed in the Baseline (JC62) Safety Plan and onward. (NK7)

NK7: (1) and (2) are overlapped with 1.21.3 (5) and (6).

(3) Skill ~~t~~ Training (JC62) may be omitted in full or in part for any Contractor's Personnel who, the Contractor has ascertained, hold valid academic, educational or vocational qualification and who are appropriately skilled and experienced in their respective trades or occupations in full compliance with GC 6.9 [*Contractor's Personnel*]. The Contractor shall report the names of any such Contractor's Personnel to the Engineer for his information.

JC62: modified.

1.21.3 Further Training of Operation Leaders and Skilled Workers

(1) Unless otherwise specified in the Particular Safety Specification and without limiting or changing the Contractor's obligations under the Contract, the Contractor shall be required to select candidates from his local skilled and unskilled workforce that he considers are suitable to act as future Operation Leaders and skilled workers, respectively.

(2) Training of Operation Leaders

(a) The Contractor shall ensure that his personnel work closely with and transfer necessary knowledge and skills via OJT to such candidates to develop their management abilities, skill levels and awareness of international safety and quality standards.

(b) To compliment the OJT, the Contractor shall provide classroom-based training courses and assign qualified instructors to develop the ability, skills and awareness and also to pass on their knowledge in future to their working colleagues and compatriots.

(3) Training of Skilled Workers

(a) The Contractor shall ensure that his personnel work closely with and transfer necessary knowledge and skills via OJT to such candidates to develop their skill levels and awareness of international safety and quality standards.

(b) To compliment the OJT, the Contractor shall provide classroom-based training courses and assign qualified instructors to develop the ability, skills and awareness according to the work and also to pass on their knowledge in future to their working colleagues and compatriots.

(4) The Contractor shall develop the syllabus and teaching hours appropriately and submit

details to the Engineer for his information. Wherever appropriate, the syllabus shall also include health and safety training to an international level of appreciation with a general introduction to OSHA and other applicable international safety standards and regulations. (JC63)

JC63: ユーザーガイドにあった記述から移転。但し全ての trainee に施すことでもないので、必要に応じてという記述にしました.

Moved this sentence from User Guide. However, it is not necessary to all trainees, so added “Wherever appropriate”.

NK: To MD, this sentence is not mandatory, however it seems JICA want to specify it.

~~(5) The Contractor shall test and qualify such personnel and provide them with formal written confirmation of their training, testing and academic, educational or vocational qualification, with copies provided to the Engineer if so requested by the Engineer.~~

~~(6) Outline of such training shall be submitted with the Bid Stage Safety Plan. Details of the training shall be further developed in the Baseline Safety Plan and onward.~~ (NK8)

NK8: deleted because (5) and (6) are with 1.21.2 (1) and (2).

1.21.4 Unless otherwise specified in the Particular Safety Specification, the Contractor shall not bring into the Country for use upon the Works any unqualified, unskilled or inexperienced foreign Contractor’s Personnel.

(1) Up to here, JICA comments are inserted by NK on 2020/7/27.

1.22 DANGEROUS WORK

1.22.1. Examples of Dangerous Work (JC125)

JC125: moved from entire 2.3.3 to 1.22.

For clarity "Dangerous Work" shall also include:

(1) The delivery, storage and/or use of harmful, dangerous or explosive materials, chemicals, gases or the like to be used in the Works or for use in or which are the product of the manufacturing or treatment process of the finished Works or in Operational Areas.

(2) Welding work, hot cutting work or demolition work.

(3) Work in areas where Contractor's Personnel are already performing work that may become more hazardous if anyone other than authorised personnel enter, for example Scaffolding erection, use and dismantling, and areas where Contractor's Equipment is operating and the HSO considers there to be a risk of any accident.

(4) Work in areas where very hot or cold objects are being handled and/or the working area itself is extremely hot or cold.

(5) Work in areas where there is potential exposure to harmful radiation or ultrasound.

(6) Work in areas where the concentration of gases, dust and any other dangerous or harmful materials exceed the limits specified in JSSS 2.1 [*Work Environment*].

(7) Work in areas where Permanent Works or Temporary Works have not been performed completely or properly and/or which are therefore unsound, unstable or unsafe.

(8) Work in areas under, within or adjacent to existing buildings, roads, bridges or other structures which are unstable and/or unsafe and which pose risks to safety unless additional support and strengthening measures are implemented.

(9) Work ~~or work~~ in areas which may have been damaged and otherwise rendered dangerous by adverse climatic, natural or seismic conditions.

1.22.2. Particular care shall be taken by the Contractor when performing any Dangerous Work.

1.22.3. Contractor's Personnel who are to perform or be involved at the Site in the performance of Dangerous Work, in addition to the usual safety induction training, shall be given further special training according to the nature of the Dangerous Work upon which they are to be engaged so that they can safely perform such work.

1.22.4. The HSO shall check and certify that each of the trained workers are authorised to be engaged upon particular types of Dangerous Work, by issuing an official permit in accordance with JSSS 1.23 [*Permit to Work System*] that is to be worn conspicuously and be available for validation by the Engineer.

1.22.5. The HSO shall ensure where Dangerous Work is to be performed, that preparatory pre-work inspections are carried out to investigate and assess the work to be performed and ascertain the conditions likely to be encountered. Such inspection work shall be carried out by specially trained personnel. The Contractor shall prepare safety procedures to ensure that any such inspection personnel are not placed at risk because of any unsafe environmental or other adverse or dangerous conditions.

1.22.6. A specially trained Operation Leader shall always be assigned to work full-time with every worker or team of workers engaged upon Dangerous Work.

1.22.7. The Contractor shall train and equip teams of selected workers at the Site for emergency rescue operation in accordance with JSSS 1.24 [*Accident Response Plan*].

1.22.8. The Contractor shall prepare and implement procedures for effective safety control of Dangerous Work. Such procedures may include zoning arrangements whereby different degrees of risk are separately categorised into different levels of requirement. The contents of

this shall be included in the Method Statement and Safety Plan.

1.22.9. Signage shall clearly describe the Dangerous Work and state the reasons why the area is dangerous.

1.22.10. For measures for prohibiting entry, methods of demarcation and further definition of Dangerous Work, refer to JSSS 2.3 [*Prohibition of Entry ~~– Dangerous Work~~*]. (JC63)

1.22.11. Hazardous Substances.

(1) If the Contractor during the execution of the Works, encounters and is required by the Particular Safety Specification or instructed by the Engineer to remove any Hazardous Substances (for example: asbestos and similarly dangerous or hazardous materials), the Contractor shall employ suitable specialists that are appropriately and specifically qualified, skilled and experienced in the safe and environmentally acceptable removal and disposal of the Hazardous Substances.

(2) The Contractor shall submit ~~detailed~~ (JC63) Safety Plans and Method Statements with respect to the removal and disposal of the Hazardous Substances to the Engineer in accordance with JSSS 1.7 [*Contractor's Safety Plans*] and JSSS 1.9 [*Contractor's Method Statements*].

JC63: deleted.

1.23 PERMIT TO WORK SYSTEM – DANGEROUS WORK (JC64)

JC64: added.

1.23.1 The Contractor shall prepare and implement a "Permit to Work System" and a description of this shall be included in the Safety Plan.

1.23.2 The system shall be designed to control safety for Dangerous Work.

1.23.3 The system shall ensure that all foreseeable risks have been considered and that the required control measures for safe working have been implemented before any specific work is permitted to proceed.

1.23.4 Permits shall certify that workers are protected when they perform and workers shall sign the permit and register to show that they understand the risks and the precautions necessary.

1.23.5 The HSO shall assess the work and check safety at each stage and manage the Permit to Work System.

1.24 ACCIDENT RESPONSE PLAN

1.24.1 The Contractor shall be responsible for responding to and treating accidents at the Site in an efficient and dedicated manner with the provision of rescue and treatment services using trained personnel with experienced and qualified medical staff and adequate and equipped facilities at the Site.

1.24.2 Medical, first aid and related services and facilities at the Site for accidental injuries shall be made available free of charge to the Contractor's Personnel. If so specified in the Particular Safety Specification, such medical services and facilities shall also be made available free of charge for ~~the family members of the aforementioned~~ other personnel/persons (e.g. the family members of the Contractor's Personnel, Employer's Personnel and their family members). (JC65)

JC65: modified.

1.24.3 The Contractor shall prepare an Accident Response Plan as a part of the Safety Plan.

1.24.4 The Contractor shall provide the following medical and first aid facilities and services: (NK9)

NK9: added. To MD, please review this.

(1) ~~Deployment of a~~ Appropriate first aid appliances, aids, instruments and medicines.

(2) ~~First aid training, appointment of~~ Trained first aiders ~~and dissemination of information~~.

(3) ~~Type of c~~Communication facilities and measures for Emergency Response.

(4) Medical facilities on the Site together with ~~description of~~ suitable medical equipment and consumables.

(5) Temporary water and power supply to maintain use during mains supply failure.

(6) Transportation ~~facilities~~ to be provided to efficiently and carefully transport casualties to ~~clinics on Site~~ medical facilities on the Site or hospitals off the Site. (JC66)

(7) Additional facilities specified in the Particular Safety Specification, if any.

JC66: modified.

1.24.5 Where the Site is located at an excessive distance from urban areas and/or where there is a lack of immediate availability of medical services and facilities, or where local health authorities do not exist or are lacking in capability or standard of medical care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site to comply with his obligations as specified in the Particular Safety Specification ~~and as are necessary to fully protect all relevant personnel~~. (JC67)

JC67: added and deleted.

1.24.6 The Contractor shall train selected Contractor's Personnel to perform emergency rescue in a safe manner in the event of any accident. Workers so trained are called upon in the event of any emergency to rescue any person(s) who may become trapped or injured or otherwise affected or incapacitated and ~~to~~ (JC68) provide suitable, specialist and appropriate first aid treatment. They shall be allowed to continue with their normal work when not required for emergency rescue.

1.24.7 Rescue equipment shall include respiratory protective equipment for rescue operations, where the nature of the Works would dictate, safety extraction belts/harnesses/ropes ~~measures~~ (JC68).

1.24.8 ~~If an accident occurs and rescue is required, the Contractor shall prohibit any personnel to engage in rescue activities other than those trained to do so in order to prevent secondary accident.~~ (JC68)

JC68: deleted.

1.24.9 Workers trained for emergency rescue, in addition to normal first aid treatment, shall be trained to perform Cardiopulmonary Resuscitation (CPR) and also to operate an Automatic External Defibrillator (AED) in accordance with the requirements of JSSS 2.9 [*PPE and First Aid*]. (JC69)

JC69: added.

1.24.10 Adequate first aid equipment and supplies shall in any case be readily available at the Site and as referred to in JSSS 2.9 [*PPE and First Aid*].

1.25 MEASURES AT THE TIME ACCIDENTS OCCUR

1.25.1 When an accident occurs, the HSO shall immediately discontinue the concerned work, inform the Engineer and take all efforts to:

(1) Safely locate and extract casualties.

(2) Provide first aid treatment at the Site.

(3) Implement Secondary accident prevention activities, including:

(a) Preserving the accident site, make safe and ~~prevent anyone interfering or entering~~ prohibit any personnel to engage in rescue activities who are not trained to do so; (JC70)

JC70: modified.

(b) Discontinuing construction work related to or in the vicinity of the accident; and

(c) Implementing any further measures instructed by the Engineer.

1.25.2 Report of Accident Occurrence, Cause, Investigation, Result and Recurrence, Prevention Measures.

(1) At occurrence of any accident, the HSO shall promptly inform the Engineer and thereafter submit details of ~~any~~ the accident within twenty four (24) hours after its occurrence. (JC71)

(2) Having investigated and established the cause of any accident, the HSO shall report the detail and conclusion of the investigation as soon as practicable ~~and in any event no later than 48 hours after its occurrence, or as may be instructed otherwise by the Engineer.~~

(3) The accident report shall include details of the ~~recommended~~ counter-measures to prevent any reoccurrence and shall be in the format included in JSSS Annex 1.3 [*Additional Contractor Forms*]. (JC71)

JC71: deleted and modified.

1.25.3 For resumption of work procedures, refer to JSSS 1.14 [*Procedure for Resuming the Works*].

1.26 EMERGENCY RESPONSE PLAN

1.26.1 To the extent reasonably possible, the Contractor shall keep himself fully informed at all times of likely forecasted climatic conditions, from TV, radio and internet and shall be aware when heavy winds, storms, rainfall or snowfall and electrical storms or other adverse climatic conditions are likely and can be reasonably anticipated.

1.26.2 The Contractor shall take all necessary measures to protect Contractor's Personnel, the Works and all Goods for incorporation therein from injury or damage caused by any such adverse climatic conditions, and to avoid, overcome or lessen the effects to a reasonable extent.

1.26.3 The Contractor shall keep all areas of the Site, free from surface water and ground water at all times and by whatever means are necessary. This shall include all newly exposed ground surfaces, excavated areas and/or excavations for structures, piling, trenches, pits, shafts, tunnels and the like, as necessary to ensure:

(1) The safety of all persons entitled to be on the Site, whether engaged in construction operations or otherwise on or in the vicinity of or adjacent to the Site.

(2) The safety and stability of the Works and Goods.

(3) The safety and stability of all ground surfaces, excavated areas and/or excavations for structures, piling, trenches, pits, shafts, tunnels and the like, to prevent landslides due to surface and/or underground (NK10) water from rainfall and snowmelt, tidal water, ground water and any changes in ground water level, river or stream erosion, human activity and the like.

NK10: added.

1.26.4 Where, due to the location of the Site, there is a risk of flooding, earthquake or volcanic activity, the Contractor shall take measures to prevent damage including damage from landslides and consequent injury, damage from such flooding, earthquake or volcanic activity.

Such measures to be implemented shall include:

(1) Avoiding the use of permanent or temporary earth dams, enclosures, containment structures, spoil heaps or the like where the effect of the above described climatic, seismic or volcanic conditions could weaken or destroy such structures and potentially create the consequent risk of danger to all relevant persons, including third parties and property not connected with the Works but potentially affected thereby.

(2) Provision of temporary support to all sides and soffits of excavations or portal of tunnelling of sufficient strength, durability and suitability.

(3) Provision of sufficient temporary drains and drain trenches to assist the flow of water and any further measures to prevent the effect of water entry to the Works, including pumping and provision of power for such measures.

1.26.5 Measures as required by the above shall be described by the Contractor in the Method Statements ~~which may be requested by the Engineer in accordance with GC 4.1 [*Contractor's General Obligations*] and JSSS 1.9 [*Contractor's Method Statements*].~~ (JC72)

JC72: deleted.

1.26.6 The Contractor shall prepare an Emergency Response Plan as a part of the Safety Plan.

1.26.7 The Emergency Response Plan, shall cover:

(1) Evacuation plan, showing evacuation routes and assembly points.

(2) Emergency communication facilities such as telephones, radios, transceivers, loudspeakers, sirens, etc. Such facilities shall be inspected by the HSO and maintained at all times so that they can be utilised in any emergency.

(3) Emergency contact system.

(4) Use of existing and available medical and other related facilities.

(5) Emergency stocks of bottled water, lights, ropes, shovels.

The Contractor shall provide and maintain in a state of readiness such equipment described above, that will remain useable in the case of an emergency. Where applicable sufficient back-up power shall be provided when power may be knocked out, long-life batteries, power generators with fuel capacity to allow long term use and the like.

1.26.8 The emergency contact system shall describe measures for quickly establishing locations~~,~~ and (NK11) methods of contact and a listing of the persons, organisations and departments, that need to be located and contacted in the event of an emergency.

NK11: Is it necessary "and"?

The list shall be posted in a visible location in the Contractor's Site office with a copy in the Employer's and Engineer's Site offices so that all personnel are informed.

The emergency contact list shall include name(s) of the person(s) responsible for making the contact, relevant contact persons, all with their respective telephone numbers and where relevant their radio contact.

The list shall include contact details and any further relevant information for the following parties, and define the extent to which contact is to be made in accordance with the type of emergency:

(1) Employer's Personnel at the Site and also at their respective head office ~~where different~~.

(2) Relevant government authorities and agencies, administrative agencies, police stations, ambulance and fire stations, and the like.

(3) Contractor's Personnel at the Site and also at the head office ~~where different.~~

(4) Subcontractors personnel and the personnel of any other contractors or suppliers at the Site and also at the head office ~~where different.~~ (NK12)

NK12: Is "where different" necessary?

1.26.9 Unless otherwise specified in the Particular Safety Specification, the Contractor shall conduct Emergency Response training based on the Emergency Response Plan at least every six (6) months, including training all personnel at the Site on evacuation plan and emergency contact

system. (JC73)

JC73: revised.

Details of the training shall be included as a part of the Emergency Response Plan and included with the Safety Plan.

1.26.10 If and when an emergency occurs, the Contractor shall share necessary information amongst prescribed persons on the emergency contact list described above and take appropriate measures including work discontinuation, evacuation of workers, making the Works, all premises and Contractor's Equipment safe, etc., all as circumstances reasonably permit and as instructed by the Engineer.

1.26.11 The Contractor shall also allow use of existing medical facilities, ambulances and equipment all as circumstances reasonably permit or as instructed by the Engineer. (NK13)

NK13: Is it necessary to mention to whom the Contractor shall allow.

~~1.26.12 For further measures and requirements refer to JSSS 2.7 [*Adverse Weather Requirements*].~~ (JC74)

JC74: deleted.

1.27 CONTRACTOR'S SAFETY COMMITTEE AND REGULAR SAFETY MEETINGS

1.27.1 The Contractor shall create an internal Safety Committee to assist with promoting and maintaining effective health and safety management.

1.27.2 Members of the Contractor's Safety Committee shall include:

(1) Contractor's Representative.

(2) HSO.

(3) Medical and first aid staff.

(4) Contractor's senior site staff.

(5) Contractor's head office safety manager (as necessary).

(6) Subcontractors' representatives, health and safety personnel, site staff.

(7) Representative of labour union, if any.

(8) (If necessary) Representatives of the relevant government authorities and agencies.

(9) Any other necessary personnel.

1.27.3 The HSO shall be the ~~chairman~~ chairperson (JC75) of the Safety Committee.

1.27.4 The Contractor shall arrange regular Safety Committee Meetings for the purpose of sharing information regarding health and safety management among the Contractor's Personnel:

(1) Frequency of the meetings: At least once a month (until issue of the Taking-Over Certificate of the entire Works). (JC75)

JC75: modified and added.

(2) Agenda:

(a) Accidents, fatalities, injuries occurred in the previous month and measures to be taken to prevent any reoccurrence;

(b) Monthly or weekly schedule of important health and safety matters;

(c) Feedback on the regular safety, coordination and other meetings with the Engineer;

(d) Safety instructions received from the Engineer;

(e) Items to be coordinated with police, fire department and other related organisations;

(f) Compliance and registration requirements under the Laws of the Country;

(g) Safety and health awards, media attention and the like;

(h) Hazards, safety and health problems identified by any members of the Safety Committee;

(i) Effectiveness of existing Safety Plans and suggestions for revision and improvement; and

(j) Other matters.

1.27.5 Report on the Safety Committee Meetings

The ~~Contractor~~ HSO (JC76) shall prepare a report summarising the concerns raised and conclusions of all items listed in the agenda as above.

A copy of this report shall be submitted to the Engineer within seven (7) days after the meeting and a further copy shall be included in the Contractor's monthly progress report.

JC76: revised.

1.28 ENGINEER'S REGULAR SAFETY MEETINGS

1.28.1 The Engineer will arrange and host a regular safety meeting to be attended by representatives of the Employer and the Contractor for the purpose of sharing information regarding health and safety management among the representatives of the Employer and the Contractor. Parties present shall have the authority to represent the organisation they belong to on health and safety matters:

(1) Frequency of the meetings: Once a month (until issue of the Taking-Over Certificate of the entire Works). (JC77).

JC77: added.

(2) Agenda:

(a) Effectiveness of existing Safety Plans and suggestions for revision and improvement;

(b) Monthly or weekly schedule of important health and safety matters;

(c) Accidents, fatalities, injuries in the previous month and measures to be taken to prevent any reoccurrence;

(d) Hazards, safety and health problems identified by any members of the Safety Committee;

(e) Status of resolution of previous problems;

(f) Items to be coordinated with police, fire department and other related organisations;

(g) Compliance and registration requirements under the Laws of the Country; and

(h) Safety and health awards, media attention and the like.

1.28.2 Report on the Engineer's Regular Safety Meetings:

(1) The Engineer shall prepare a report summarising the concerns raised and conclusions of all items listed in the agenda as above.

(2) A copy of this report shall be submitted to the Contractor and Employer within seven (7) days after the meetings.

(3) A further copy shall be included in the Engineer's Monthly Report submitted to the Employer.

(4) The Contractor shall act immediately upon any oral instruction which is a consequence of the Contractor's failure to comply with his obligations under the Contract.

(5) The Engineer shall issue a formal instruction for any variation requests.

1.29 PROJECT SAFETY COMMITTEE

1.29.1 On larger Projects with multiple contract packages, if so stated in the Particular Safety Specification, ~~and contractors and unless otherwise stated in the Particular Safety Specification for those Projects,~~ the Employer shall create a Project Safety Committee for the purpose of ensuring mutual understanding and effective implementation of health and safety management ~~throughout~~ of the entire Project ~~team~~. (JC78)

1.29.2 Unless otherwise agreed, the members of the Project Safety Committee shall include:

(1) The Employer.

(2) The Engineer(s).

(3) The Contractor's Representative(s). and HSO.

(4) Representatives and health and safety officers of all ~~members~~ contractors. (NK13)

NK13: altered.

~~1.29.3~~ The ~~Chairman~~ chairperson of the Safety Committee shall be the Employer. (JC78)

1.29.4 ~~The Employer shall hold Project Safety Committee meetings, periodically as requested by the Employer.~~ The Project Safety Committee meetings periodically takes place as requested by the Employer. The Contractor shall participate in the same whenever requested by the Employer until issue of the Taking-Over Certificate of the entire Works. (JC78)

1.29.5 The Employer shall prepare a report summarising the concerns raised and conclusions of all items discussed at the Project Safety Committee Meeting.

JC78: modified.

1.30 HEALTH AND SAFETY COORDINATION WITH OTHER CONTRACTORS

1.30.1 Refer to GC 2.3 [*Employer's Personnel*] and GC 4.6 [*Co-operation*] regarding the respective obligations and requirements for the Contractor regarding cooperation with:

(1) The Employer's Personnel.,

(2) Any other contractors employed by the Employer,

(3) The personnel of any relevant authorities ~~who may be employed in the execution on or near the Site of any work not included in the Contract~~. (JC79)

In relation to the above, the Employer shall ensure that all of the above personnel and contractors co-operate with the Contractor's efforts and that they take actions similar to those that the Contractor is required to take under relevant parts of GC 4.8 [*Safety Procedures*] and GC 4.18 [*Protection of the Environment*].

The Contractor shall provide sufficient information to the Employer who shall then ensure that all of the above personnel and contractors are fully informed of the Contractor's Safety Plan and that their personnel comply with the Contractor's Safety Plan.

When preparing the Safety Plan, the Contractor shall identify the hazards and assess the risks of all aspects. To do this properly, information (including Method Statements, risk assessments and safety plans) may be needed from other contractors who will be working at the Site. The Employer shall therefore ensure that the Contractor is provided with all such other information as ~~is~~ may be requested by the Contractor necessary so that this can be incorporated into the

Safety Plan. ~~The Employer will also ensure that the Contractor is able to contact such other contractors and liaise with them on matters of health and safety.~~ (JC79)

JC79: deleted and modified.

When risks arise because of potential interactions between the Contractor and other personnel or contractors (e.g. site transport matters) or a number of contractors are exposed to a common risk (e.g. from the site electrical distribution system), the Employer shall instruct these other contractors to adopt the same principles of risk prevention and control that are applied by the Contractor unless otherwise agreed.

1.30.2 ~~The Particular Safety Specification shall clearly describe any works for which the Employer is proposing to employ other contractors and any parts of the Site where the Employer's Personnel will be working together with a clear description of such works and the location, timing and other conditions for such works.~~ (JC80)

JC80: deleted.

1.30.3 If any other contractors are employed by the Employer ~~or if any relevant authorities responsible to the Employer~~ and are working on or near the Site of any work, the ~~Engineer~~ Employer shall arrange and host Health and Safety Coordination Meetings: (JC81)

JC81: deleted and replaced.

(1) Frequency of the meetings: as and when considered necessary by Engineer.

(2) Unless otherwise agreed, attendees shall include representatives of the Employer, Contractor and any other contractors employed by the Employer and relevant authorities who ~~may be employed in~~ are concerned with the execution of any work on or near the Site not included in the Contract (JC82)

JC82: deleted and replaced.

(3) Agenda should relate to coordination among different contractors including for example:

(a) Effectiveness of existing Safety Plans and suggestions for revision and improvement;

(b) Issues, problems and response due to the mutual impact of the work of the Contractor, Employer's Personnel, the Employer's other contractors and the works of any relevant authorities;

(c) Accidents, injuries in the previous period and measures to be taken to prevent any reoccurrence;

(d) Status of resolution of previous problems;

(e) Items to be coordinated with police, fire department and other ~~related organisations~~ relevant authorities; (JC83)

JC83: modified.

(f) Compliance and registration requirements under the Laws of the Country;

(g) Safety and health awards, media attention and the like; and

(h) Other matters.

1.30.4 Report on the Health and Safety Coordination Meetings:

(1) The ~~Engineer~~ Employer shall prepare a report summarising the concerns raised and conclusions of all items listed in the agenda as above.

(2) This report shall be submitted to the Engineer, ~~Employer,~~ Contractor and other attendees within seven (7) days after the meeting. (JC84)

(3) A further copy shall be included in the Contractor's monthly progress report.

JC84: modified.

1.31 SAFETY STATISTICS

1.31.1 The Contractor shall collect and compile statistical data for safety performance on the Works in order to permit monitoring of achievement and prevention of reoccurrence of accidents, near-misses and the like, therefore contributing to the improvement of safety on the Works.

1.31.2 Actual statistics shall include the following:

(1) Accident: description, casualties, location, time, type and cause.

(2) Near-miss: description, location, time, type and cause.

(3) Lost-time: lost hours of casualties, duration of discontinuation.

(4) Total working hours for calculation of frequency rate, severity rate and annual incident rate.

(5) Number of users of the first aid station, number of people treated for disease/injury, description of disease/injury, causes.

(6) Number of health and safety staff.

(7) Number of candidates given safety induction and other training.

(8) Number of safety inspections,

(9) Number of detections of non-compliant, unsafe or lack of Contractor's Equipment.

(10) Number of instructions issued for failure to use PPE, or inadequate or ineffective PPE.

(11) Number of Engineer's Instructions issued for work suspension.

(12) Number of HSO instructions issued for work stoppage.

(13) Others.

1.31.3 All data shall be in a format and content given consent by the Engineer.

1.31.4 ~~The statistical results shall be prepared and submitted in the Daily Safety Report to the Engineer for validation and mutual agreement.~~ (JC85)

JC 85: deleted.
NK: We understood this deletion is made because it is stipulated in 1.33.1 (1).

1.31.5 The data shall subsequently be compiled and included in the Contractor's Monthly Safety Report to be submitted under JSSS 1.33 [*Safety Reports*].

1.32 HEALTH AND SAFETY RECORDS

1.32.1 The Contractor shall keep health and safety records for the following:

(1) Inspection records and checklists.

(2) Meetings for safety and health management.

(3) Monitoring of safety and health management activities.

(4) Health and safety education and training for the Contractor's Personnel.

(5) Health management for the Contractor's Personnel, documents regarding workers' health conditions (such as medical history and medical examination results) shall be stored in compliance with the Laws of the Country.

(6) Work environment records and other records required by JSSS Chapter 2 [*General Safety Measures*] and other parts of JSSS.

(7) Record of reports as may be required by government authorities.

(8) Detection of non-compliant, unsafe or lack of Contractor's Equipment.

(9) Instructions issued for unsafe behaviour or unsafe site conditions.

(10) Instructions issued for failure to use PPE, or inadequate or ineffective PPE.

(11) Engineer's Instructions issued for work suspension.

(12) HSO instructions issued for work stoppage.

(13) Others.

1.32.2 All records shall be in a format and content given consent by the Engineer and all shall be made available for inspection by the Engineer.

1.32.3 A summary of the above records shall be submitted to the Engineer as a part of the Contractor's Monthly Safety Report to be submitted under JSSS 1.33 [*Safety Reports*].

1.33 SAFETY REPORTS

1.33.1 The Contractor shall provide regular safety reports to the Engineer to keep him fully informed of compliance with the Safety Plan and all matters of health and safety. Reports shall include:

(1) Daily Safety Report: number of workers ~~at site~~, works in progress (outline), statistical results in accordance with JSSS 1.31.2, (JC86) near-misses/incidents/accidents, safety findings, actions taken~~,~~ for improvement. (NK14)

JC86: deleted and added.
NK14: deleted.

(2) Contractor/HSO and Joint Site Safety Inspection Reports.

(3) Weekly Safety Report: summary of safety matters of the week.

(4) Monthly Safety Report: summary of safety matters for the month, monthly and cumulative safety statistics. The Monthly Safety Report shall be submitted as an attachment to the Contractor's monthly progress report, required by GC 4.21 [*Progress Reports*].

1.34 HEALTH AND SAFETY INCENTIVE SCHEMES

1.34.1 The Contractor shall consistently enforce work rules (whether or not an injury or illness is reported) to demonstrate his commitment to creating a culture of safety, not just the appearance of reducing rates. Action should not be taken to penalise any worker for reporting a work-related injury or illness rather than for the purpose of promoting workplace safety.

1.34.2 It is considered that incentive schemes are an important tool to promote an improvement in workplace health and safety and the Contractor is therefore required to develop and implement such health and safety incentive schemes.

1.34.3 It is suggested that workers should be rewarded for reporting near-misses or hazards, as this promotes worker involvement in the health and safety management process.

1.34.4 Consideration should also be given to rate-based incentive schemes which concentrate on reducing the number of reported injuries and illnesses by rewarding workers with certification and/or prizes or bonuses at the end of an injury-free period and which also could reward Operation Leaders or managers based on the lack of injuries (JC87) within their respective teams.

JC87: Is this expression correct?

1.34.5 Any scheme must however be implemented in such a manner that it does not discourage reporting by workers, such as taking negative action against a worker by withholding a prize or bonus because of a reported injury.

1.34.6 The Contractor shall introduce adequate precautions to ensure that workers feel free to report an injury or illness.

1.34.7 As an alternative to rate-based ~~achievement~~ incentive (NK15) schemes, incentive schemes that take positive steps to emphasise safety, not just incident rates are often useful such as schemes that reward workers for identifying potentially unsafe, dangerous or hazardous conditions on the Site.

NK15: revised.

1.34.8 The Contractor shall describe the proposed health and safety incentive scheme in the Safety Plan and shall also inform the Employer and Engineer about the progress and achievement of such schemes through their Monthly Safety Report submitted under JSSS 1.33 [*Safety Reports*].

1.35 CONTRACTOR'S EQUIPMENT, TEMPORARY WORKS, SAFETY EQUIPMENT AND PPE

1.35.1 Contractor's Equipment, Temporary Works, Safety Equipment and PPE to be used upon the Works, (for example electrical systems, welding and cutting equipment, ~~s~~ Scaffolding, (JC88) ~~system~~ (JC89) Formwork and Falsework, etc.) together with all components, systems, materials and equipment, safety equipment and PPE (referred to collectively in this ~~clause~~ Section (JC90) as Contractor's Equipment and Temporary Works), shall be suitable and fit for the purpose for which they are intended.

JC88: There are "Scaffolding" and "scaffolding", "Falsework" and "Falseworks", "Formwork" and "formwork". Please make them consistent in JSSS.
JC89: deleted.
JC90: The naming is considered as follows:

1. Chapter
1.1 Section
1.1.1 Clause
1.1.1(1) Sub-Clause
1.1.1 (1) (a) paragraph

JICA revised as above considering the content. Please review them in JSSS.

All shall be used in full accordance with the manufacturer's printed instructions or accepted industry practice and shall be used, stored, handled, assembled, erected, installed, maintained and dismantled by qualified, skilled, specially trained and experienced personnel.

1.35.2 The Contractor shall ensure that all items of Contractor's Equipment and Temporary Works for use upon the Works are inspected by the HSO at the required location before the commencement of any operation or use and regularly inspected thereafter to ensure continued compliance with the foregoing. Following any such inspection, all tested items shall be labelled by the Contractor with clear, durable and weatherproof labels confirming the last/current date of inspection, date of next inspection and signed by the HSO, thereby certifying the items as being safe for use.

If the HSO ascertains at any time that any items are not suitable for use, he shall immediately stop all use of that item, label the item as not being safe for use, stop all work for which that item and any associated items is being used and cease any such work until the situation is corrected by repair, re-testing and certifying. Similarly, the Engineer may issue instructions to stop all use of any item and stop all work for which that item and any associated items is used when it is discovered that the certification is not available or is not currently valid.

1.35.3 The Engineer may also instruct that any Contractor's Equipment and Temporary Works shall be subjected to examination, inspection, measurement or testing, by the Contractor at the expense of the Contractor. The Contractor shall submit the report of such examination, inspection, measurement or testing to the Engineer.

If, as a result, any such Contractor's Equipment and Temporary Works is found to be defective, or otherwise not in accordance with JSSS or the Contract, the Engineer may reject such Contractor's Equipment and Temporary Works by giving notice to the Contractor, with reasons.

The Contractor shall then promptly make good the defect and ensure by repair/replacement (JC91) as necessary and re-testing that the rejected item(s) complies with the Contract.

JC91: added.

1.35.4 As confirmed in Form JSSS/BSD Bidder's Safety Declaration (refer to JSSS Annex 1.3 [*Additional Contractor Forms*]), the Contractor shall mobilise for use upon the Works:

(1) New and up to date Personal Protective Equipment (PPE) and other safety equipment of an international standard, suitable and fit for the purpose for which it is intended, in full working order, complete with all necessary spare parts and consumables, suitable and safe for use on the Works, all to meet with the consent of the Engineer and in sufficient quantities to allow for replacement in the case of being worn-out, lost or damaged.

(2) New or up to date Contractor's Equipment and Temporary Works, all suitable and fit for the purpose for which it is intended, in full working order, clean, non-polluting, complete with all necessary spare parts and consumables, suitable and safe for use on the Works.

1.36 HEALTH MATTERS

1.36.1 The Contractor is reminded of his obligations under GC 6.7 [*Health and Safety*] to take all reasonable precautions, at all times to maintain the health of the Contractor's Personnel and ensure that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics. Under other clauses of the Contract, the Contractor is required to protect the Contractor's Personnel from insect and pest nuisance, and to take other measures to reduce danger to their health.

1.36.2 Healthcare services and facilities at the Site shall be made available free of charge. If so specified in the Particular Safety Specification, such healthcare services and facilities shall also be made available free of charge for ~~the family members of the aforementioned~~ other personnel/persons (e.g. the family members of the Contractor's Personnel, Employer's Personnel and their family members). (JC92)

JC92: revised.

1.36.3 Occupational health care shall be provided by the Contractor and shall include:

(1) Environmental health care with consideration and precautions against asbestos, dust, lead and other metals, gases, hazardous and toxic chemicals, sunlight, engine exhaust emissions, (refer also to JSSS 2.1 [*Working Environment*]).

(2) O~~ccupational health care including~~ Measures against noise, frequent or excessive use of vibrating tools.

(3) Avoiding frequent or excessive manual handling of loads, stress and fatigue.

(4) Fitness to work based on the ~~examinations, including eyesight, hearing and~~ physical mobility and capability of the Contractor's Personnel. (JC93)

JC93: modified.

1.36.4 The Contractor shall prepare a Health Care Plan as a part of the Safety Plan including, descriptions and where necessary details or quantities of:

(1) Health care staff to be assigned at the Site.

(2) Provision of anti-mosquito measures including nets, medications ~~or inoculations~~ (NK16) and the like in malarial prone areas.

NK16: It is deleted because of no commercially available malaria vaccine as shown in WHO:
https://www.who.int/immunization/research/development/malaria/en/

(3) Healthcare services to be provided including lectures and education on health matters.

(4) Healthcare treatment facilities and medicines on the Site together with description of equipment and consumables.

(5) Occupational healthcare proposal.

(6) Temporary water and power supply to maintain use during mains supply failure.

1.36.5 Where the Site is located at an excessive distance from urban areas and/or where there is a lack of immediate availability of healthcare services and facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional healthcare services and facilities at the Site to comply with his obligations as specified in the Particular Safety Specification and as are necessary to fully protect all relevant personnel. (NK17)

NK17: 1.36.5 is same as 1.24.5 except "health care". It seems better to modify to avoid duplication.

1.36.6 Report of Serious Illness

(1) The Contractor shall inform the Engineer and submit details of any serious illness.

(2) Having investigated and established the cause of any serious illness, the Contractor shall report the detail and conclusion of the investigation as soon as practicable to the Engineer.

(3) The report shall include details of the HSO's recommended counter-measures.

(4) The Engineer is to be consulted on the types of illness for which reports are to be informed.

1.37 DESIGN AND MANAGEMENT OF TEMPORARY WORKS

1.37.1 Unless otherwise specified in the Particular Safety Specification, the Contractor is required to comply with Sections 1 and 2 of BS5975: Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework as management standard with respect to design, erection, use and dismantling of Temporary Works. (JC94)

JC94: added.
NK: We deleted last time, however JC wants again to add them.

1.37.2 An alternative standard is acceptable by reference to JSSS ~~1.4.5 [*Compliance with JSSS and Other Regulations*]~~ *[Specified Standards]* (JC94) providing that the proposed alternative also contains equivalent or higher standards for the management of Temporary Works.

JC95: 引用先は 1.4 が正しいと思いますが、念のためご確認下さい。

Please confirm the reference is 1.4 or 1.4.5.
NK: The title of 1.4.5 is Specified Standards. The title is revised.

1.37.3 It is to be noted that Sections 1 and 2 of BS5975 constitutes guidance and recommendations and it is not quoted herein as if it constitutes a specification or an integral part of JSSS. The Contractor shall however justify in writing any course of action that deviates from the recommendations of Sections 1 and 2 of BS5975 and shall submit such justification to the Engineer for his information and consent.

1.37.4 It is to be noted that certain design standards included or referred to in the BS (for example wind loadings), are restricted to use in the United Kingdom, in which case the Contractor shall be assumed to have adopted the design standards applicable in the Country of the Works.

1.37.5 The Contractor shall prepare and implement suitable procedures whereby all Temporary Works staff during the course of their work and on completion shall prepare and sign formal records of all Temporary Works under their management and control, thereby certifying that all has been performed, completed and validated in accordance with Sections 1 and 2 of BS5975. All such records shall be in a format and content subject to the consent of the Engineer and all shall be made available for inspection by the Engineer.

1.37.6 Without affecting the Contractor's responsibilities for design of the Temporary Works, the Engineer shall cooperate with the Contractor's Temporary Works staff and shall provide pertinent information about the design of the Permanent Works which may be of relevance and assistance to the Contractor with the Temporary Works design.

The Contractor shall submit Method Statements for any parts of the Temporary Works (including designs and calculations of Falseworks) as may be requested by the Engineer for his review in accordance with JSSS 1.9 [*Contractor's Method Statements*]. If the Engineer chooses to review same, this shall not be construed as a check or validation of the Contractor's design or methods.

The Engineer may review Temporary Works design for those parts which he considers to be of vital importance for safety. The Contractor shall cooperate and work with the Engineer on this task to demonstrate that the Contractor has systems in place to ensure compliance with Sections 1 and 2 of BS 5975 or any other acceptable standard in accordance with JSSS 1.37.2. ~~[*Design and Management of Temporary Works*].~~ (JC95)

JC95: added and deleted.

1.37.7 For further information on monitoring the performance of Temporary Works, refer to JSSS 6.1.3. [*Monitoring the Performance of Temporary Works*].

1.37.8 Irrespective of any legal requirement under the Laws of the Country, all of the Contractor's Temporary Works ~~specialist~~ staff shall have appropriate academic, educational or vocational qualification for Temporary Works coordination, design or supervision as appropriate. Such staff shall also have work experience in construction and in Temporary Works design or supervision as appropriate. The Contractor shall ascertain for himself that all such staff are qualified to perform their duties. (JC96)

JC96: 1.37.5、1.37.6 では単に Temporary Works staff と言っている。
1.37.5 and 1.37.6 stipulate only "Temporary Works staff".

1.38 UNEXPLODED ORDNANCE (UXO)

1.38.1 If there is a possibility that any UXO may exist at the Site, then unless otherwise specified in the Particular Safety Specification, this shall be surveyed and investigated by the Employer and the result of this investigation shall be clearly stated and full information including survey and investigation results shall be provided by the Employer in the Particular Safety Specification.

1.38.2 Unless otherwise specified in the Particular Specification, clearance of UXO shall be undertaken by the Employer and at the cost of the Employer.

1.38.3 Completion of clearance shall be evidenced through the issue by the Employer's specialist remover of a certificate of UXO clearance from the Site area. Unless otherwise approved by the Engineer, no work shall commence in affected areas of the Site until the receipt of a copy of this certificate.

1.38.4 Should the Contractor encounter any UXO, after a clearance certificate has been issued in accordance with the above, he shall immediately stop all affected work at the affected area of the Site, clear the area of all Contractor's Personnel, Employer's Personnel and all other persons and notify the Engineer and relevant authorities.

1.38.5 Unless otherwise agreed between Employer and Contractor, the Employer shall then make further arrangements for removal and disposal, then obtain and issue a further clearance certificate. Work shall resume in the affected areas after the Contractor has received a copy if the further clearance certificate together with any further instructions from the Engineer.

(2) Up to here, JICA comments and NK modification are inserted by NK on 2020/7/28.

ANNEXES TO CHAPTER 1: GENERAL REQUIREMENTS

Annex 1.1: Definitions and Abbreviations

A1.1.1 The following words and expressions in JSSS relating to the Conditions of Contract and the content of JSSS shall have the definitions stated:

~~(1) "**Executing Agency**" means the representative organisation of a recipient government of the JICA Loan tasked with the responsibility (inter alia) for managing the implementation of the Project including preparation of Bidding Documents and usually defined in the Contract as the Employer.~~(JC97)

JC97: deleted.

(2) "**GC**" ~~and "**PC**"~~ followed immediately by a reference number means respectively General Conditions of Contract and Particular Conditions of Contract, Clause or Sub-Clause. (JC98)

JC98: deleted.
NK: To MD, is it necessary to delete "and Particular Conditions of Contract"?

(3) "**Health and Safety Officer**" or "**HSO**" means the Contractor's health and safety officer at the Site to be appointed by the Contractor in accordance with GC 6. 7 [*Health and Safety*] ~~as construed in accordance with JSSS 1.12 [*Health and Safety Officer at the Site (HSO)*].~~ For the purposes of interpretation under JSSS, the reference to "accident prevention officer at the Site" in GC 6.7[Health and Safety], shall be construed as "Health and Safety Officer at the Site". (JC99)

(4) "**JICA Standard Safety Specification**" or "**JSSS**" means the document of this title published officially by JICA on their website as may be further modified by the Particular Safety Specification for the Works.

(5) "**Method Statement**" means a document that shows the details of the arrangements, methods and resources that the Contractor proposes to adopt for the execution of the Works or any part of the Works, as referred to in GC 4.1 [*Contractor's General Obligations*] and supplemented by JSSS 1.9 [*Contractor's Method Statements*].

(6) **"Operation Leader" (**also known variously as a "Ganger", "Leading Hand", "Foreman" (working and non-working), "Team Leader", "Superintendent", "Supervisor" and the like) means a member of the Contractor's workforce who through experience, training and testing is deemed by the Contractor to be appropriately qualified, skilled and experienced in their respective trade or occupation to work with, lead and/or supervise the teams of workers, directing them and/or superintending them in the performance of their assigned duties and to ensure their compliance with the Contractor's safety regulations and who can also be referred to within the OSHA definition as a "Competent Person".

(7) "**OSHA**" means the technical requirements of "OSHA Standard Part 1926 Safety and Health Regulations for Construction", as written in Code of Federal Regulations (29 CFR) and published by the Occupational Safety and Health Administration, U.S. Department of Labor.

(8) "**Particular Safety Specification**" means the document that contains the particular additions and modifications to JSSS, necessary to create a precise and relevant specification of the health and safety requirements for the Works.

(9) "**Safety Specification**" means the document that contains Part 1 [*JSSS*] and Part 2 [*Particular Safety Specification*].

(10) "**Project**" means the particular Works and services to be implemented by the Borrower and described in the loan agreement, utilising the funds provided by JICA under the terms mutually agreed for that purpose.

(11) "**Safety Plan**" means a document (or documents) that contains the overall risk assessments together with the details of all health and safety arrangements, methods and resources that the Contractor proposes to adopt for health and safety management of the entire Works or any Section or part of the Works, as referred to in GC 4.1 [*Contractor's General Obligations*] as supplemented by JSSS 1.7 [*Contractor's Safety Plans*].

(12) "**Safety**" shall also mean "occupational health and safety" and "health and safety".

A1.1.2 The following words and expressions in JSSS relating to the technical content of JSSS shall have the definitions stated:

(1) "**Accident Response**" means the requirements for the Contractor's response to an accident at the Site or Sites, as further referred to in JSSS 1.24 [*Accident Response Plan*].

(2) **"Confined Spaces"** means spaces that are not designed for continuous occupation but are provided for persons to enter and perform certain works (including inspection, maintenance and repairs) and that consequently may have limited or restricted means for entry or exit. Due to the likelihood of insufficient ventilation, the Contractor shall be aware of a potentially unhealthy or dangerous environment and he shall be deemed to have investigated and taken measures against such risks in every case.

(3) **"Cofferdam"** means a temporary enclosing wall constructed in water, to permit the enclosed area to be pumped out and used as safe and accessible working space.

(4) **"Dangerous Goods"** means corrosive, flammable, explosive, spontaneously combustible, toxic, oxidising, or water-reactive materials. They must be identified in the workplace (and when being transported) by different coloured 'diamond' symbols. classified on the basis of immediate physical or chemical effects, such as fire, explosion, corrosion and poisoning. An accident involving Dangerous Goods could seriously injure persons and seriously damage property and/or the environment.

(5) **"Dangerous Work"** means Permanent or Temporary Works to be executed by the Contractor in Confined Spaces, Hazardous Areas, or Operational Areas or in the presence of or requiring the use of Hazardous Substances or Dangerous Goods or other work which is especially and potentially dangerous and which requires the use of specialist skills, safety equipment, safety measures and PPE.

(6) "**Diver**" means a worker working in water using underwater breathing apparatus which supplies compressed breathing gas at the ambient pressure.

For definition of further terms relating to Diving Works, refer to JSSS Chapter 10 [*Diving Works*].

(7) "**Earthwork Support**" means the permanent or temporary structural support arrangements to prevent the collapse or weakening of the surfaces of any excavation including for example basement, pit, trench or slope excavation.

(8) "**Elevated Access Structures**" means the substantial, elevated, temporary working platforms, usually comprised of structural steel columns, beams, framing and floor decking and used for performing Works ~~at Sites~~ with difficult access or with restricted room for construction operations or steeply sloping or offshore Sites.

(9) "**Emergency Response**" means the requirements for the Contractor's response to any Emergency at the Site or Sites, as further referred to in JSSS 1.26 [*Emergency Response Plan*].

(10) "**Falling Objects**" means objects falling from heights including displaced, dropped, or blown Goods, tools, debris or waste material.

(11) "**Falsework**" means temporary supporting structures used to support parts of the Temporary Works or Permanent Works during construction, until the latter are stable, self-supporting and safe.

(12) "**Formwork**" means temporary containment structures for in-situ concrete and the immediately supporting members pending the concrete achieving sufficient strength to support its own weight and act safely as a structural component.

(13) **"Hazardous Substances"** means any substance, whether solid, liquid or gas, that may cause harm to health.

(14) **"Hazardous Areas"** means areas where there is a risk of explosion due to the presence of flammable or explosive gases, vapours, mists or dusts.

(15) "**Hoisting Operation**" means the selection of Hoisting Equipment appropriate to the purpose, preparation of Method Statements and Safety Plans and safely implementing the hoisting and placing of loads in position.

For definition of further terms relating to Hoisting Operations and associated rigging, refer to JSSS Chapter ~~6~~ 5 [*Hoisting and Rigging*].

(16) "**Operational Area**" means an area in a functioning process, treatment, manufacturing or like facility where the Contractor is required to perform ~~Works~~ work (JC100) while the Employer is continuing operations.

JC 100: revised.
NK: Is this revision correct?

(17) "**Other Properties**" means buildings, structures, ground surfaces and substrata, paved areas, roads, footpaths, fences, railways, waterways, drainage, utilities and other services or the like or any other property on the Site or outside the Site which, ~~where so mentioned in JSSS~~ may be in some way affected by the execution of the Works.

(18) "**Personal Fall Arrest System**" or "**PFAS**" means a fall protection system that is designed to arrest a worker in a fall from a working level.

(19) "**Personal Fall Restraint System**" or "**PFRS**" (also referred to as a "Positioning Device System") means a fall protection system that is designed to restrict the movement of workers, preventing them from reaching the edge of any working area and therefore eliminating the risk of a fall.

(20) "**Personal Protective Equipment**" or "**PPE**" means equipment that is worn by the person to minimize exposure to hazards that cause serious workplace injuries and illnesses, which may result from falling objects, excessive noise, dust, contact with chemical, radiological, physical, electrical, mechanical, or other workplace hazards.

(21) "**Safety Belt**" means a sufficiently substantial strap to be secured about the waist for attaching to a lanyard or line to restrain the movement of workers and prevent them from reaching locations from where they may be at risk of falling.

(22) "**Safety Harness**" means a sufficiently substantial harness to be secured about the body for attaching to a lanyard, lifeline and deceleration device to safely arrest and support any worker during a fall.

(23) "**Scaffold**" or "**Scaffolding**" means a temporary structure or structures that provide access on or from which persons work or to support Goods.

(24) "**Skill Training"** means additional training to be provided by the Contractor for the ~~counterpart~~ Contractor's Personnel to develop and improve their trade skills in performing their work at the Site and shall include OJT and theoretical training in accordance with JSSS 1.21 [*Skill Training*]. Such training shall also include examining and testing by the Contractor and certification of attainment in such skills.

(25) "**Spotter**" means a member of the Contractor's Personnel who is generally responsible for warning other Contractor's and Employer's Personnel and other persons and keeping them away from working operations and areas, for assisting drivers of trucks and operators of ~~other~~ Contractor's Equipment in positioning their vehicles and equipment

particularly when reversing, positioning or hoisting, and such further duties as are assigned to them in JSSS ~~Section~~ 2.4 [*Spotters Flagmen and the Like*].

Any reference to a "Spotter" in JSSS shall also be deemed to include a reference to a banksman~~, or~~ flagman ~~or signaller~~.

(26) "**Trade Effluent**" means any liquid waste (effluent) that is discharged from premises being used for a business, trade or industrial process, other than surface water and domestic sewage.

(27) "**Unexploded Ordnance**" or "**UXO**" shall mean unexploded bombs, or explosive remnants of war or explosive weapons(such as bombs, shells, grenades, land mines, naval mines, cluster munition, and the like) that did not explode when they were employed and still pose a risk of detonation, sometimes long after they were used or discarded.

(28) "**Working Platform**" means a platform on or within a ~~s~~ Scaffold that is intended and designed to support persons or Goods. (JC101)

JC101: deleted, added and modifies.

A1.1.3 The following abbreviations of technical terms shall have the meanings stated:

AED	Automatic External Defibrillator
BMGV	Biological Monitoring Guidance Values
CPR	Cardiopulmonary Resuscitation
ODA	Official Development ~~Aid~~ Assistance
OJT	On Job Training
PFAS	Personal Fall Arrest System
PFRS	Personal Fall Restraint System
PPE	Personal Protective Equipment
TBM	Tool Box Meetings
TWA	Time Weighted Average
WEL	Workplace Exposure Limits

A1.1.4 The following abbreviations of standards, codes and the like shall have the meanings stated:

ACI	American Concrete Institute
ANSI	American National Standards Institute
ASHTO	American Association of State of Highway Transportation Officials
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials.
BS	British Standard
BS EN	British Standard European Norm
HSE	UK Health and Safety Executive
ISO	International Organization for Standardization
ILO	International Labour Organization
JIS	Japanese Industrial Standards (JC102)

JC102: deleted and modified.

Annex 1.2: Content of Bid Stage Safety Plan

A1.2.1 This Annex lists the required content for the Bid Stage Safety Plan as referred to in JSSS 1.7 [*Contractor's Safety Plans*]. Unless otherwise ~~S~~ specified in the Particular Safety Specification, the Contractor shall follow this format and structure in the Bid Stage Safety Plan. The same format and structure shall be used later for the Baseline Safety Plan but with the content ~~and~~ developed as necessary to show the required detail.

A1.2.2 The Bid Stage Safety Plan shall be an outline plan but it must cover each of the items listed below with sufficient detail provided to demonstrate that the Bidder understands the requirements and indicates the Bidder's intentions, so that this can be understood and properly evaluated.

(1) Description of the Works

A description of the Works supported by overall layout plan(s) to provide a clear understanding of the overall layout and content of the Works and showing main construction items and areas, roads, Site access and egress locations, working areas, storage areas, temporary offices, laydown areas, warehouses and like facilities and including a summary of principal work items and significant quantities, etc.

(2) Bidder's Corporate Policy on Health and Safety Management

A description of the Bidder's corporate health and safety management policy covering the aims and intentions for improving the level of health and safety. The policy shall include a description of the purpose of health and safety (prevention of occupational accidents, maintenance of physical and mental health of workers, etc.), a description of the basic company policies on risk assessment and health and safety management.

(3) Health and Safety Management System, Responsibility and Authority of Bidder's Personnel

A description of the health and safety management organisation at the Site headed by the Bidder's Health and Safety Officer ~~at Site~~ (HSO) and showing the approximate numbers, responsibilities and authority of any other Contractor's Personnel involved in health and safety management at the Site.

A description of the responsibilities and authority of the Bidder's head office health and safety personnel together with the communication procedures for contact and support for the Site safety teams.

(4) Health and Safety Laws

A list of Laws (including all standards) of the Country which require the Bidders compliance for the health and safety of his workers and for the health and safety management of the Works. If the Contractor considers any parts to be superseded by JSSS then the relevant Clause number of JSSS shall be inserted.

(5) Bidder's Safety Management System

Refer to JSSS 1.5 [*Contractor's Safety Management System*]

Describe the scheme that the Bidder is proposing and how he intends to implement same.

(6) Temporary Works

Refer to JSSS 1.37 [*Design and Management of Temporary Works*].

A Safety Plan for Temporary Works listing the principal items, describing the content, and specifying the outline of safety measures to be applied to ensure compliance with the requirements.

(7) Temporary Facilities on Site

The plan shall include a description of the general health and safety rules (e.g. smoking areas, traveling speed on Site, cleanliness, tidiness, latrines, wash rooms, shelters, etc.).

(8) Safety Measures for Contractor's Design of the Permanent Works

If, under GC 4.1 [*Contractor's General Obligations*], the Contract specifies that the Contractor shall design any part of the Permanent Works, the Bidder shall provide a description of the arrangements for controlling risks arising from such design of the Permanent Works.

(9) Safety Plan for the Works

A Safety Plan for the whole of the Works with separate parts provided for each part of the Works, including descriptions of the likely risks and measures for preventing accidents on the Site.

(10) Dive Safety Plan

(Where Diving Works are included in the scope)

Refer to JSSS Chapter 10 [*Diving Works*]

A Dive Safety Plan in accordance with the requirements of JSSS Chapter 10, including a description of the arrangements at the Site of the Diving Works for emergency recompression/decompression.

(11) Safety Plan for Dangerous Work.

Refer to JSSS 1.22 [*Dangerous Work*]

A listing of any Dangerous Work which will be encountered on the Site and general details of the Safety Plan for such Dangerous Work by reference to JSSS Annex 1.1 [*Definitions and Abbreviations*] and GC 4.1 [*Contractor's General Obligations*].

(12) Permit to Work System

Refer to JSSS 1.23 [*Permit to Work System*]

A listing of all high-risk areas of the Works that shall be subject to the Permit to Work System together with a description of proposed procedure.

(13) Safety Measures for Contractor's Equipment

Refer to JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*]

A description of the procedures for inspecting and maintaining the Contractor's Equipment together with all spare parts, including inspections prior to shipment, after arrival at the Site and during use to ensure that all Contractor's Equipment at the Site is maintained in a safe, efficient, non-polluting and acceptable condition. It shall include a general description of all regular maintenance and repair activities.

(14) Proposed Health and Safety Incentive Scheme

Refer to JSSS 1.34 [*Health and Safety Incentive Schemes*]

A description of the Proposed Health and Safety Incentive Scheme, designed to encourage conscious consideration of health and safety by Contractor's Personnel and to reward improvement.

(15) Safety Information Sharing and Communications Policy

A description of the information sharing and communication systems for health and safety within the organisation of the Contractor and between the Contractor and Employer, Engineer and relevant government agencies, etc. Reference shall be made to the various health and safety meetings described in JSSS.

A description of safety management activities for Contractor's Personnel shall be included together with the method for giving and receiving feedback and opinions regarding health and safety.

(16) Health and Safety Equipment, Facilities and Personal Protective Equipment (PPE)

Refer to JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*]

A description of the intended policies for the deployment of safety equipment, facilities and PPE to reduce health and safety risks, detailing the items and methods for providing and replacing (when worn, lost or damaged) general PPE and the use of additional PPE for particular working locations, environments and conditions.

(17) Site Inspection Plan

A description of the methods for Site inspections by the HSO, types of inspection and frequency.

The description shall also include the methods for reporting, recording and utilising results and also for posting warnings, no entry notices, giving instructions and stopping work.

(18) Site Security

A description of the proposed Site security methods explaining how access to the Site by third parties, neighbours, nearby residents and any trespassers upon the Site will be prevented or (if and when applicable) permitted.

The description shall include the provision and control of entry and exit gates, barriers etc., security posts, security patrols and any other measures to reasonably ensure the security of the Site.

(19) Policy for Preventing Traffic Accidents

A description of the measures to be implemented for the prevention of traffic accidents on the public roads outside the Site and on roads and all other trafficked areas within the Site.

A description of the measures to be implemented to prevent workers riding in the back of pick-ups or trucks, or boarding or alighting from them near the Site, compulsory wearing of seat belts, ~~systems of warning, punishment and dismissal for non-compliance should also be included~~.

(20) Reporting Procedure for Unsafe Conditions and Behaviour

A procedure for the reporting of unsafe conditions and unsafe behaviour on the Site (including near-misses) together with improvement actions including instructions, implementation and the recording of improvement measures.

(21) Accident Response Plan

Refer to JSSS 1.24 [*Accident Response Plan*]

The Plan shall describe the facilities to be provided and also cover the preparation and submission of the accident report, describing when an accident report will be prepared and submitted, the method of investigation of causes, planning and implementation of preventive measures against recurrence.

(22) Health Care Plan

Refer to JSSS 1.36 [*Health Matters*]

A description of the proposed facilities, furniture and equipment for rest stations, restroom, dining facilities, canteens, sanitary facilities, sports and leisure facilities, shower facilities, changing room etc..

A health care plan with services and facilities for maintaining the health and occupational health of all Contractor's Personnel.

(23) Environmental, Temporary Works and Structural Monitoring Plans

Refer to JSSS 2.1.7 [*Monitoring and Records*]

A description of the proposed monitoring equipment, instruments, Contractor's Personnel and methods for monitoring and control of the working environment, the performance of the ~~Temporary~~ Works and the avoidance of damage to Other Properties.

(24) Fire Response Plan

Refer to JSSS 2.8 [*Fire Prevention*]

Details of the fire prevention services to be provided at the Site.

~~The Fire Response Plan required by JSSS 2.8 [*Fire Prevention*].~~

(25) Emergency Response Plan

Refer to JSSS 1.26 [*Emergency Response Plan*]

Details of the Emergency Response Plan.

(26) Monitoring and Review of Health and Safety Management Activities

The procedures for monitoring and reviewing the purpose, method, timing, utilisation of results, development, etc. of health and safety management activities such as safety inspections, TBM ~~morning toolbox meetings~~, 5S activities (refer to JSSS 1.15 [*Contractor's Safety Management Activities*]).

(27) Safety Induction Training

Refer to JSSS 1.20 [*Safety Induction Training*]

An outline description of the required safety induction training for all proposed health and safety training plans, describing methods, facilities, time, teaching materials, policies for selecting trainers, etc. and covering safety induction.

Details of special training required for Dangerous Work~~s~~ shall also be included.

(28) Skill Training

Refer to JSSS 1.21 [*Skill Training*]

An outline description of the proposed Skill Training plans for local counterpart Operation Leaders, describing OJT and classroom components, facilities, participants, time, teaching materials, policies for selecting trainers and the counterparts.

(29) Legal Requirements

A description in brief with references to the legal requirements and remedies in the Country for injuries and death at work and for persons affected by illness, together with a summary of any workmen's accident compensation insurance or stating that there are no such legal requirements if that is the case, and any other legal obligations and remedies. (JC103)

JC103: deleted and modified.

Annex 1.3: Additional Contractor Forms

Attached Forms:

Form JSSS/BSD - Bidder's Safety Declaration

Form JSSS/SAR - Sample Accident Report

Form JSSS/BSD - Bidder's Safety Declaration

[This form is to be inserted in the Bidding Documents after the existing Form-ACK, with new page number, renumbering existing pages appropriately and inserting suitable reference in the Table of Forms]

I, *[insert name and position of authorised signatory]*, being duly authorised by *[insert name of Bidder/members of joint venture ("JV")]* (hereinafter referred to as the "Bidder") to execute this Form JSSS/BSD, hereby declare our commitment to comply with the health and safety requirements of the Contract.

The Bidder declares, that if selected to undertake the Works, he will ensure that the Site is established and maintained as a healthy and safe workplace for the Contractor's Personnel, the Employer's Personnel and all other persons entitled to be thereon or that may be affected by operations thereby.

The Bidder hereby declares that after ~~full~~ investigation and research of resources within the Country, he has given full and careful consideration and fully accepts the need and has made full allowance for the importation, the use upon the Works and subsequent re-export in accordance with the Contract of all required Contractor's Equipment, Temporary Works, PPE and all other safety resources necessary to maintain the ~~highest achievable~~ international level of health and safety upon the Works.

The Bidder declares that he will mobilise for use upon the Works:

1. New and up to date PPE and other safety equipment ~~and Temporary Works~~ of an international standard, suitable and fit for the purpose for which it is intended, in full working order, complete with all necessary spare parts and consumables, suitable and safe for use on the Works, all to meet with the consent of the Engineer and in sufficient quantities to allow for replacement in the case of being worn-out, lost or damaged, and
2. New or ~~up to date~~ recent Contractor's Equipment and Temporary Works, all suitable and fit for the purpose for which it is intended, in full working order, clean, non-polluting, complete with all necessary spare parts and consumables, suitable and safe for use on the Works~~;~~ .

~~and that all of the above will be used correctly and for the purpose intended.~~

The Bidder further declares that he shall:

1. Carry out regular and thorough safety inspections, find and correct any health and safety problems on the Works, primarily by trying to eliminate or reduce hazards through making feasible changes in working conditions rather than relying on PPE to ~~eliminate or~~ reduce risks.
2. Employ workers with appropriate skill, educational or vocational qualification, experience and capability.
3. Fully inform workers about hazards.
4. Provide health and safety training to all Contractor's Personnel, any ~~s~~Subcontractors, suppliers and others for whom the Contractor is responsible, the Employer's Personnel and all other persons who are entitled to be on the Site, in a language and vocabulary they can understand.
5. Keep accurate records of work-related injuries and illnesses.
6. Perform tests in the workplace, such as air sampling as required by the Safety Specification.
7. Provide required new PPE at no cost to workers and ensure that this is used properly, kept in good condition and replaced in the case of being worn-out, lost or damaged.
8. Assign only workers who, in consideration of health, physical condition and age are suited to the operations to which they are assigned.

9. Provide eyesight, hearing and mobility examinations and other medical tests required by the Contract.

10. Post injury and illness information and data where workers can see them.

~~11. Inform the Engineer and submit details of any accident as soon as practicable and in any event no later than twenty-four (24) hours after the occurrence and, in the case of a fatal accident shall inform the Engineer immediately.~~ At occurrence of any accident, promptly inform the Engineer and thereafter submit details of the accident within twenty four (24) hours after its occurrence.

12. Not retaliate against workers for using their rights under the Laws of the Country.

The requirements of this declaration shall apply fully to all of the Bidder's proposed Subcontractors, suppliers and specialists engaged by the Bidder on the Works, for whom the Bidder shall remain fully responsible.

The Bidder also affirms that if the Bid is successful, the Health and Safety Officer ~~at Site~~, named below and also included in Bidding Form, Form PER -1: Proposed Personnel, unless otherwise required by the Bidding Documents, shall be assigned from the Commencement Date, full-time upon the Site ~~of the Works~~ and shall not be replaced or substituted at any time except with the consent of the Engineer.

If the Bid is accepted the Bidder agrees that this Declaration ~~together with all other documents comprised in the Bid Stage Safety Plan~~ shall form a part of the Contract, at and from which time all references to "Bidder" shall be construed as references to "Contractor".

Signed:	Signed:
_____	_____
(Bidder's Official Representative)	(Bidder's Proposed Health and Safety Officer ~~at Site~~*) Or Bidder's Head Office Health and Safety Manager*)
Name:	Name:
_____	_____
Date: _____	Date: _____(JC104)

JC104: deleted and modified.

*(*Delete as applicable)*

Form JSSS/SAR – Sample Accident Report

[The form is to be completed by the Contractor, submitted to the Engineer when applicable and in accordance with JSSS 1.25 [Measures at the Time Accidents Occur]

CONTRACT INFORMATION:	
1) Name of Project:	
2) Project Reference Number： （e.g. L/A No.~~, G/A No.~~）	
3) Contract Number:	
4) Package Description:	
5) Employer: (name and nationality)	
6) Contractor: (name and nationality) (If casualty(ies) is(are) belonging to ~~s~~Subcontractor,) Subcontractor: (name and nationality)	
7) Engineer: (name and nationality)	
8) Press Report about the Accident (Name of Media, Date, and Copy of Report to be attached)	

(above to be inserted before all reports) (JC105)

JC105: deleted and modified.

FIRST REPORT INFORMATION:	
1) Date and time of accident occurrence (local time):	
2) Date and time of first verbal report to Engineer:	
3) Exact location of accident occurrence:	
4) Brief background and apparent cause:	
5) (i) Number of casualty(ies)/ (ii) Information of casualty(ies) (Nationality, Age, Sex, Position, Experience Year)/ (iii) Description of injuries incurred	
6) Physical damages to the Works, Site and any properties of the third parties	
7) Present medical status of casualty(ies):	
8) Present work status:	
9) List attached information (e.g. Layout and sketch drawings, photographs, notes and report):	
10) Accident Report Submission Date	

SUBSEQUENT REPORT INFORMATION (POST-INVESTIGATION):	
1) Cause(s) of the accident:	
2) Counter-measures proposed by the Contractor to avoid recurrence of similar accidents and risks:	
3) Number of reported accident(s) occurred in the past one (1) year in the same Contract Package as the accident occurred:	
4) Number of reported near misses occurred in the past one (1) year in the same Contract Package as the accident occurred:	
5) Other Information:	

Report Prepared by: (name): _____ (sign) : _____ Report Submission Date(s) _____ Time: _____	Contractor's Health and Safety Officer (HSO)
Receipt acknowledged by: (name): _____ (sign): _____ Report Receipt Date(s) _____ Time: _____	Engineer

(above to be inserted with detail and signatures at end of each report)

CHAPTER 2: GENERAL SAFETY MEASURES

2.1 WORK ENVIRONMENT

Contractor's Personnel shall be provided with a safe and healthy occupational environment. The Contractor shall implement all necessary measures to ~~ensure this, taking particular care to~~ (JC106) avoid the creation of and/or any contact with Hazardous Substances, intense noise, heat, cold or similar and potentially harmful conditions or to provide protection against such conditions.

JC106: deleted.

2.1.1 Hazardous Substances

(1) Definitions

Refer to the definition of Hazardous Substances in JSSS Annex 1.1 [*Definitions and Abbreviations*]. ~~For the purposes of this definition, note that Hazardous Substances shall include dust of any kind when present at a concentration in air equal to or greater than:~~

~~(a) 10 mg/m3 (8-hour TWA) of inhalable dust; or~~

~~(b) 4 mg/m3 (8-hour TWA) of respirable dust.~~ (JC107)

JC107: Moved to 2.1.2.

(2) Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any Hazardous Substances either existing on the Site, used in or encountered on the Works, the Contractor shall take necessary measures for work environment complying with the technical requirements specified in EH40/2005 Workplace Exposure Limits, (third edition published 2018), issued by HSE, including monitoring such substances to ensure that the Short Term and Long-Term exposure limits in HSE Table 1 are not exceeded. (JC108)

JC108: Moved from 2.1.2.

2.1.2 ~~Compliance Standards~~ Dust (JC109)

~~(1) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for work environment complying with the technical requirements specified in EH40/2005 Workplace Exposure Limits, (third edition published 2018), issued by HSE.~~ (JC109)

(1) Dust

Dust of any kind when present at a concentration in air shall not be equal to or greater than:

(a) 10 mg/m3 (8-hour Time Weighted Average: TWA) of inhalable dust; or

(b) 4 mg/m3 (8-hour TWA) of respirable dust. (JC109)

JC108:modified.

(2) Prevention

(a) The Contractor shall prevent dust emission, by keeping the source moist and covering dust creating areas and materials with suitable dust-proof sheeting; and

(b) The Contractor shall provide all necessary Contractor's Equipment and Temporary Works to achieve this including water-bowsers, spraying equipment, extract ventilation and filtration equipment.

(3) PPE

(a) If, in the opinion of the HSO, it is not reasonably practicable to reduce dust to acceptable levels, PPE (Breathing Apparatus) shall be provided for all relevant Contractor's Personnel; and

(b) For details of PPE refer to JSSS 2.9.1 [*PPE*].

~~(2) The Contractor shall monitor all substances and ensure that the Short Term and Long Term exposure limits in HSE Table 1 are not exceeded.~~

(4) Asbestos

(a) The Contractor shall be aware that asbestos causes occupational fatalities. It is commonly found in older buildings frequently in ceiling and floor cavities, insulation, sprayed coatings, floor tiles and composites, asbestos-cement sheets and roofing felt;

(b) If the scope of the Works requires removal of any of the above materials then the Contractor shall check for asbestos content, then remove and dispose of such materials in compliance with L143 Approved Code of Practice and guidance, for Managing and Working with Asbestos (second edition published 2013), issued by HSE; and

(c) If the Particular Safety Specification specifies that asbestos may exist at the Site and that the Contractor is responsible for the removal and disposal or if it is discovered during the execution of the Work and the Contractor is instructed by the Engineer to remove it, then the Contractor shall take measures in accordance with the requirements of JSSS 1.22 [*Dangerous Work*]; and comply with L143 Approved Code of Practice and guidance, for Managing and Working with Asbestos (second edition published 2013), issued by HSE; for the controlled safe removal and disposal of asbestos.

~~(3) Other Hazardous Substances~~

~~The Contractor shall comply with relevant HSE regulations with regard to health and environmental management and control of any other Hazardous Substances either existing on the Site, used in or encountered on the Works.~~

~~(4) Prevention~~

~~(c) The Contractor shall prevent dust emission, by keeping the source moist and covering dust creating areas and materials with suitable dust proof sheeting; and~~

~~(d) The Contractor shall provide all necessary Contractor's Equipment and Temporary Works to achieve this including water bowsers, spraying equipment, extract ventilation and filtration equipment.~~

~~(5) PPE~~

~~(c) If, in the opinion of the HSO, it is not reasonably practicable to reduce dust to acceptable levels, PPE shall be provided for all Contractor's Personnel; and~~

~~(d) For details of PPE refer to JSSS 2.9.1 [*PPE*].~~ (JC110)

JC110: modified and added.

2.1.3 Poor Ventilation

(1) The Contractor shall inspect and carry out ~~tests~~ monitoring (JC111) to ensure that all working areas have adequate and healthy natural ventilation.

JC111: revised.

(2) If any areas do not have adequate and healthy natural ventilation, the Contractor shall

provide suitable and efficient mechanical ventilation systems with fans, ducting and all associated devices and services to improve the working environment to acceptable safe levels.

(3) If this is not completely possible then PPE (breathing apparatus) shall be used in accordance with the requirements of JSSS 2.9.1 (8) [*Respiratory Protection Equipment (RPE)*].

(4) The Contractor shall generally prohibit the use of internal combustion engines in internal areas. When the use of such engines is unavoidable, the Contractor shall provide exhaust systems which safely and efficiently collect, contain and expel exhaust gases to external areas and provide additional adequate ventilation.

2.1.4 Noise

(1) Compliance Standards

(a) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for noise exposure and control complying with the technical requirements specified in OSHA Subpart D—Occupational Health and Environmental Controls §1926.52 Occupational noise exposure; and

(b) The Contractor shall provide equipment such as, sound level meters, noise dosimeters, or octave band analysers to determine what sound levels exist and whether they are within the levels in Table D-2 or not.

(2) Preventive Measures

To prevent noise damage to Contractor's Personnel, which may occur when noise levels exceed 90 dBA (referred to as "intense noise" in JSSS), or if for any reason sound levels cannot be determined as above the Contractor shall:

(a) Reduce sound levels through feasible administrative or engineering controls to within the levels of Table 2.1.1: OSHA Table D-2: Permissible Noise Exposures of the OSHA Standard referred to above, if at all possible:

Table 2.1.1: OSHA Table D-2: Permissible Noise Exposures

Duration per day, hours	Sound level dBA slow response	Duration per day, hours	Sound level dBA slow response
8	90	1½	102
6	92	1	105
4	95	½	110
3	97	¼ or less	115
2	100		

(b) If such controls are not possible or if they fail to reduce sound levels within the levels of OSHA Table D-2, provide PPE (Ear Protection) for ~~all~~ relevant Contractor's Personnel as specified in JSSS 2.9.1 (7) [*Ear Protection*] in consideration of the noise level and length of noise exposure at the work area in accordance with the provisions of the OSHA Standard;

(c) Post warning signs at the work area to make all Contractor's Personnel aware that ear protection must be worn; and

(d) In all cases where the sound levels exceed the values shown OSHA Table D-2, a Continuing Effective Hearing Conservation Program specified in (3) below shall be implemented.

(3) Hearing Conservation Program

(a) The Contractor shall implement a hearing protection and conservation program whereby noise exposure levels are monitored in order to accurately identify any Contractor's Personnel that are exposed to noise at or above 90 dBA averaged over 8 working hours, or an 8-hour time TWA; and

(b) The Contractor shall monitor all workers whose noise exposure is equivalent to or greater than a noise exposure received in eight (8) hours where the noise level is constantly 90 dBA. The exposure measurement must include all continuous, intermittent, and impulsive noise within an 80 dBA to 130 dBA range and must be taken during a typical work situation. The Contractor shall choose the monitoring method that best suits each individual situation. (JC112)

JC112: deleted, added and modified.

2.1.5 Further Requirements for Dangerous Work

Further to the requirements of JSSS 1.22 [*Dangerous Work*] and in relation to work in Confined Spaces, Hazardous Areas, or Operational Areas or in the presence of or requiring the use of Hazardous Substances or Dangerous Goods or other work which is especially and potentially dangerous, requiring the application of special skills, safety equipment, safety measures and PPE, the Contractor shall establish systems and procedures to ensure the safety of all Contractor's Personnel engaged upon or supervising or managing such Dangerous Work, and for this purpose the Contractor shall:

(1) Measure the concentration of oxygen, hydrogen sulphide, carbon dioxide, carbon monoxide, chlorine, chlorine dioxide, Trade Effluent and any other potentially harmful materials, gases and chemicals, or other work environment items before starting any work.

(2) Safely isolate the supply and flow of any Trade Effluent, chemical or other potentially harmful and materials, gases and chemicals during the period of any work and safely reconnect or continue same after the work is finished.

(3) Improve and maintain the work environment for example by mechanical ventilation and filtration if the result of the work environment measurement in (1) above violates the limits ~~imposed by~~ specified in this JSSS Chapter 2 [*General Safety Measures*].

(4) For further information on the removal and disposal of Hazardous Substances refer to JSSS 1.22 [*Dangerous Work*].

(5) For further information on prohibition of entry to areas where Dangerous Work is being performed refer to JSSS 2.3 [*Prohibition of Entry - Dangerous Work*]. (JC113)

JC113: modified.

2.1.6 High and Low Temperatures and Humidity

(1) To avoid health hazards due to excessively hot, cold or humid working environments, the Contractor shall improve the ~~environmental working conditions~~ work environment for all Contractor's Personnel by:

(a) Providing temporary covers and shade to protect workers from rain, hail, snow, sunlight and reflection from the surrounding wall and ground;

(b) Providing protection from any heat or cold source and provide adequate ventilation, heating or air conditioning for indoor working;

(c) Where permitted by the Engineer in hot climates, carrying out work during the

night when temperatures and humidity are lower;

(d) Providing drinking water and supplement that allow salt replenishment at the work place;

(e) Providing a rest station with heating, air conditioning or shade near the work place, or providing other facilities equipped with accommodation that allow personnel who fall ill to lie down and recover;

(f) Allowing work breaks and reducing excessive and continuous working times; and

(g) Allowing an initial acclimatisation period for Contractor's Personnel to become used to the heat or cold.

(2) The Contractor shall ensure that workers wear moisture-permeable and loose-fitting clothing in hot climates and suitably warm, insulated and waterproof clothes in cool or cold climates.

(3) If any undesirable conditions are detected, the Contractor shall take appropriate measures to correct the situation, allowing Contractor's Personnel to rest or temporarily stop the work until the conditions improve.

(6) ~~The Contractor shall ensure that all Contractor's Personnel are properly dressed in suitable insulated cold weather clothing to work safely in low temperatures.~~ (JC114)

JC114: deleted and modified.

(4) The Contractor shall monitor the health of Contractor's Personnel before and during the work and allowing Contractor's Personnel to take a rest and/or rehydrate and shall act if any abnormalities are observed.

2.1.7 Monitoring and Records

(1) The Contractor shall monitor the working environment and prepare regular daily, weekly and monthly records of dust, noise, air and water quality, inadequate natural ventilation, rainfall, snowfall, temperatures, humidity, wind speed and direction regularly ~~throughout the Time for Completion of the Works.~~ until the Taking-Over Certificate is issued for the entire Works. (JC114A)

JC114A: revised. (Note 114a is added on 20200811.)

(2) The procedure for preparation and submission of such records shall be as stated in JSSS 1.32 [*Health and Safety Records*].

(3) The Contractor's monitoring and recording shall also cover:

(a) The pre-existent conditions for all periods of Dangerous Work;

(b) Dust at work places where excessive dust and waste material such as dirt, rocks, minerals, metals, carbon, cement, etc. is generated;

(c) Noise levels at work places that generate intense noise;

(d) Ventilation volume, temperature and concentration of carbon dioxide, carbon monoxide, oxygen, hydrogen sulphide, other toxic or dangerous gases at work places including tunnels and deep pits and Confined Spaces; and

(e) Illuminance at work place and walkways.

(4) The above monitoring shall be conducted separately from the environmental monitoring that may be required by the Laws of the Country and any environmental monitoring that may be separately specified in the Contract.

(5) For the following measurement items, if the following limits are violated, the Contractor shall take the measures prescribed in JSSS 1.22 [*Dangerous Work*], JSSS 2.1.5 [*Further Requirements for Dangerous Work*] and JSSS 2.3 *[Prohibition of Entry – Dangerous*

Work].

(a) Values of limits of measurement items:

(i) Oxygen concentration less than 19.0% and more than 23.5%;

(ii) Hydrogen sulphide concentration more than 10 ppm (short-term exposure limit) or 5 ppm (long term exposure limit);

(iii) Carbon dioxide concentration more than 15,000 ppm (short-term exposure limit) or 5,000 ppm (long term exposure limit); and

(iv) Other Hazardous Substances either existing on the Site, used in or encountered on the Works: ~~V~~ values of limits for other substances given in EH40/2005 Workplace Exposure Limits (third edition published 2018), issued by HSE, Table 1.

(b) Combustible gas and vapor concentration: in excess of 10% of the lower limit of flammability.

(6) The Contractor shall also monitor any vibration, settlement and other adverse effects arising out of the execution of the Works to ascertain if these are causing any adverse effect to the Works or to Other Properties whilst ensuring that no damage or weakening is caused.

(7) Monitoring shall be accomplished by the Contractor through regular inspection, measurement, survey, instrument monitoring and recording as determined by the nature and scope of the Works taking account of any additional requirements which may be specified in the Particular Safety Specification.

(8) Works that require monitoring shall include the following where any risk of damage is perceived by the HSO or Engineer:

(a) Excavation Works;

(b) Foundation Piling Works;

(c) Ground improvement;

(d) Temporary ground dewatering;

(e) Temporary Works such as major items of Earthwork Support, Coffer ~~D~~dams and the like; to demonstrate that they are performing safely, to the designed limits and for the intended purpose;

(f) Other parts of the Works required to evidence the Contractor's compliance with the ~~Contract~~ Safety Plan; and

(g) Other parts of the Works which may be specified in the Particular Safety Specification.

(9) The Contractor shall prepare a monitoring plan as a part of the Safety Plan or Method Statement for the above Works (JC115) which shall describe:

JC115: Is "the above Works" to be replaced with "for the works hereinabove"?

(a) The Contractor's proposed monitoring criteria for vibration, settlement and all other potential effects of the Works, which by the Contractor's own calculations will ensure that no damage or weakening is caused to Other Properties;

(b) The types, locations and numbers of monitoring instruments and other equipment;

(c) The measurement frequency and recording methods; and

(d) The countermeasures to be applied when the actual measured values are close to or exceed the various minimum, intermediate and maximum criteria.

(10) The Contractor shall:

(a) Provide and maintain all survey equipment, monitoring and recording equipment to provide comprehensive, accurate and contemporary or live data with records, showing the performance characteristics of the Works;

(b) Provide qualified staff to perform the monitoring;

(c) Maintain and calibrate the monitoring instruments and equipment as necessary throughout the execution of the Works;

(d) Perform survey and monitoring on a regular basis throughout the execution of the Works;

(e) Confirm the occurrence and extent of any adverse effect of the Works execution (JC116) by means of regular inspections of all Other Properties;

JC116: JC wonder whichever is appropriate "to execution of the Works" or "caused by execution of the Works"?

(f) Take the measures prescribed when necessary to comply with the Contractor's obligations, propose remedial measures and implement such measures after receiving the consent of the Engineer;

(g) Evaluate the measurement results and modify the monitoring criteria as necessary; and

(h) Submit an evaluation report if necessary with any changes to the Safety Plan for Works to the Engineer before proceeding with the Works.

(11) Requirements for instrumentation systems shall be as follows:

(a) The Contractor shall select instruments and measurement methods that meet the purpose of the ~~measurement~~ monitoring;

(b) The Contractor shall determine locations and numbers of measurement points which meet the purpose of ~~measurement~~ monitoring and need for safety management. The locations of measurement shall be where measurement can be continuously made throughout the period of works are provided;

(c) The instrumentation shall be regularly calibrated and protected against damage by the Contractor;

(d) The HSO and other relevant Contractor's Personnel shall ~~monitor~~ analyse the data and take all necessary corrective action consequent to such monitoring to ensure the continued compliant and safe performance of the Works; and

(e) The Engineer shall be invited to attend the inspections and data collection to ensure the Contractor's compliance in accordance with JSSS 1.10 [*Engineer's Safety Representative*], JSSS 1.11 [*Safety Compliance Instructions from the Engineer*] and JSSS 1.16 [*Joint Site Safety Inspections*].

(12) Management based on Monitoring and Inspection

(a) Management by Visual Inspection:

If and when the Contractor finds any irregularity through visual inspection, the Contractor shall take necessary measures in accordance with the degree of abnormality, ~~including verification of inspection results through measurement, survey or added instrumentation and the implementation of urgent countermeasures.~~ including detailed research, urgent countermeasures, evacuation of workers.

(b) Management by Instrument Measurement:

Unless otherwise specified in the Particular Safety Specification, the Contractor shall determine control limit values based initially upon the allowable displacement or stress in the design, then the following stepwise control values shall be established by the Contractor and necessary measurement and related actions shall be taken.

The Contractor shall provide the following three critical limits in his arrangements for the performance of the Works or in his design of the Temporary Works, and shall take appropriate action when any of these limits is reached:

(i) Primary Limit:

When measured values reach this limit, the Contractor shall increase the ~~incidence and~~ degree of care on the incident over inspections and commence preparing countermeasures which will be implemented if and when the measurement value reaches the Secondary Limit and obtain the Engineer's consent for such countermeasures.

The Contractor shall submit the measured values on a weekly basis to the Engineer unless otherwise instructed by the Engineer.

(ii) Secondary Limit:

When measured values reach this limit, the Contractor shall stop the relevant part of the Works and implement the countermeasures.

(iii) Control Limit:

When measured values reach this limit, the Contractor shall immediately stop the relevant part of the Works, advise all affected persons, prohibit entry of any unauthorised persons to the affected area(s), take ~~radical~~ counter measures to prevent failure, review and revise the Method Statement and Safety Plan, and comply with the Engineer's Instructions before proceeding.

~~(13) Contract Compliance~~ Contractor's Responsibility against damage to Property (JC117)

Notwithstanding the requirements of this subclause (JC118) of JSSS, the Contractor is reminded of his overall responsibility under the Contract in respect of damage to property.

The Contractor shall satisfy himself that the monitoring criteria and requirements specified above, or in other respective Chapters of JSSS and/or in the Particular Safety Specification, are sufficient to comply with his obligations under the Contract and he shall take any additional measures necessary to avoid damage to property.

JC117: deleted, modified and added.
JC118: Is this Clause or other?

1.	Chapter
1.1	Section
1.1.1	Clause
1.1.1(1)	Sub-Clause
1.1.1 (1) (a)	paragraph

2.2 RISK CONTROL AROUND THE SITE

2.2.1 General

(1) The Contractor is reminded of his obligations under GC 4.8 [*Safety Procedures*] and GC 4.22 [*Security of the Site*] to keep any unauthorised persons off the Site, and without prejudice to such obligations the Contractor shall take all necessary further measures under this Section to prevent any such unauthorised persons (including third parties, neighbours and particularly children) who may for example be living or working around the boundary of the Site or adjacent thereto, from entering the Site.

(2) ~~The Contractor shall inform the Engineer and request that the Employer takes necessary action including removal of any third parties and/or neighbours who may establish themselves outside the Site along and for example against the Site boundary during the Time for Completion of the Works for the potential purpose of accessing the Site.~~ In addition, the Contractor shall help to maintain communications with the local community near the Site in accordance with JSSS 2.2.6 [Community Relations]. (JC119)

JC119: modified.

(これは Site に対する第三者の立ち入り禁止を論じている部分であり、Site 自体の possession や Access を論じているわけではないので、不法・合法いずれにせよ住民を立ち退かせるところまで発注者に要求することはできないのではないか？するとできることは周辺住民との良好な関係を維持することにつきる。)

(3) In addition to taking necessary action to keep any unauthorised persons off the Site the Contractor shall fully inform the relevant local ~~police force~~ authorities (e.g. police force) and if necessary request their ~~assistance~~ investigation to remove any trespassers from the Site. When requested by the Contractor, the Employer shall provide reasonable assistance to coordinate with such local authorities. (JC120)

(4) Such measures shall include (but are not restricted to) the following requirements of this Section.

(5) The Contractor shall also prevent access to the Site by any persons, including Contractor's and Employer's Personnel and any others who are under the influence of drink or drugs and also to prevent alcohol and drugs from being brought onto the Site. (JC120)

JC120: modified and added.

2.2.2 Working Area Perimeter

(1) Unless otherwise specified in the Particular Safety Specification, the Contractor shall:

(a) Enclose the perimeter of all working areas with secure fencing to prevent access to the Site by unauthorised persons;

(b) Maintain all such fencing in good condition, until such fencing is no longer needed and reinstate all affected areas;

(c) Provide secure entry points with lockable gates or barrier; and

(d) Provide and maintain signs clearly advising/warning against entry.

(e) Provide watchmen and lighting where, when and to the extent necessary to apprehend and evict any unauthorised persons (particularly children) from the working area, where such persons have breached the Site Perimeter and working area perimeter fencing.

(2) Unless otherwise specified in the Particular Safety Specification, working area perimeter fencing shall be temporary, constructed of new and durable materials and fit for the purpose intended.

(3) Full details of working area perimeter fencing including scope, dimensions and specifications shall be given in the Method Statement.

(4) The Contractor shall provide fall prevention measures such as temporary covers or barriers, with lighting and warning signs for any excavations outside the working area perimeter.

2.2.3 Measures for Road Occupation

(1) When the Contractor carries out work on, in or under a public road, or uses it for access to the Site, ~~prior to commencement of any such work and~~ (JC121) based on the prior coordination with the relevant authorities by the Employer, in order to ensure safe and smooth traffic flow on the road, the Contractor shall:

(a) Prepare a road usage plan and submit it to the relevant authorities, and obtain necessary permits, prior to road use;

(b) Obtain the approval and necessary permits of the relevant authorities before any road closure, diversion or other traffic restrictions are applied;

(c) Take necessary measures to ensure safe and smooth traffic flow on the road during the entire road usage period; and

(d) Take safety measures specified in JSSS 2.2.2 [*Secure Working Area Perimeter*].

(2) ~~Unless otherwise instructed by the Engineer, t~~The (JC121) Contractor shall provide a Spotter (refer to JSSS 2.4 [*Spotters, Flagmen and the like*] full time upon the Works (including all non-working periods) so that the Contractor's Personnel and the general public including road users, pedestrians and all others are effectively informed, controlled and protected against accident.

JC121: deleted.

2.2.4 Temporary Road Signs

(1) For disseminating necessary information on roads adjacent to the Site, the Contractor shall:

(a) Provide standard road signs in the same colours and format as those used by the relevant authorities in the Country such as construction signs, direction, speed restriction, detour and roadwork signs;

(b) Signs shall be set in suitable places so as to give due warning, information and guidance to road-users and pedestrians alike (JC122); and

JC122: Is it "and the like?

(c) Signs shall be fit for purpose, fixed firmly so as not to break, fall or otherwise be damaged due to vibration, wind or other natural causes.

(2) Maintain the various signs regularly, including repairing, painting and cleaning. Ensure that all are clearly visible, well-lit or made of reflective materials so that they can be seen clearly from a distance at night.

2.2.5 Traffic Accident Prevention at Site Entrance

(1) In order to prevent traffic accidents occurring at or near the Site entrance, the Contractor shall:

(a) Provide warning signs adjacent to the Site entrance to inform drivers on the public road that the Site entrance exists and to inform of the possible emergence of construction traffic/equipment;

(b) Provide temporary traffic signals or Spotters for safe control of traffic (including construction traffic) and Contractor's Equipment, Contractor's Personnel and the

general public including road users, pedestrians and all others to protect against accident;

(c) Provide designated areas for anyone entering the Site to board or be discharged from public and private transport;

(d) Provide pedestrian crossings, ~~manned or with~~ and passages with Spotters or traffic signals; and

(e) ~~Prevent vehicles entering or exiting the Site carrying persons in the back of trucks, pick ups or the like~~. (JC123);

JC123: deleted and modified.

(2) Priority shall be given to pedestrians and passing vehicles at the entrance.

2.2.6 Community Relations

(1) In order to maintain communications and improve safety for the local community near ~~to~~ (JC124) the Site, the Contractor shall:

(a) Cooperate with the Employer and assist in dissemination of comprehensive information about the Project to the nearby community; and

(b) If so required by the Particular Safety Specification, Conduct traffic safety and awareness activities for the local community.

(2) The Contractor shall ensure that all Contractor's Personnel are informed of the safety rules and any precautions regarding the safe passage of construction vehicles/equipment especially when children are arriving at or leaving from school.

(3) The Contractor shall report immediately to the Engineer if the local community raises any complaints or issues any requests to the Contractor.

JC124: deleted.

2.3 PROHIBITION OF ENTRY ~~– DANGEROUS WORK~~ (JC125)

2.3.1 General

(1) The Contractor shall prohibit unauthorised personnel from entering areas where Dangerous Work is being undertaken

(2) For general requirements of Dangerous Work (JC125) refer to JSSS 1.22 [*Dangerous Work*].

(3) "Unauthorised personnel" in this context shall mean Contractor's Personnel, Employer's Personnel and any other persons who have not been properly trained or who are not properly equipped with PPE (including rescue equipment) and who are not carrying and displaying an official permit issued to them by the HSO, for that specific work place in accordance with JSSS 1.23 [*Permit to Work System*].

(4) Workers assigned to Dangerous Work shall be subject to the Permit to Work System described in JSSS 1.23 [*Permit to Work System*].

JC125: deleted and modified.

2.3.2 Demarcation and Requirements

(1) The Contractor shall clearly demarcate all areas where Dangerous Work is being carried out by the use of appropriate fencing, barriers, signage and lighting and shall control access to such areas with the full-time assignment of a Spotter.

(2) The Spotter shall be established outside the working area, and shall prevent the entry of unauthorised personnel and shall constantly communicate with and monitor the safety of assigned workers. The Spotter shall be equipped with radio or other efficient means of communication to act as a liaison with other relevant Contractor's Personnel.

(3) No-one, no matter their position of authority, should be allowed to enter, if not so authorised to do so and the Contractor shall ensure that Spotters do not face any adverse repercussions because of a refusal to allow access.

2.3.3 ~~Examples of Dangerous Work~~ (JC126)

JC126: この内容がここで出てくることに唐突感あり。JSSS1.22 に 2.3.3 全体を移動させてください。
It is felt as suddenness that this content appears here. Please move the entire 2.3.3 to JSSS 1.22.

~~For clarity "Dangerous Work" shall also include:~~

~~(1) The detection, safe removal and disposal of Unexploded Ordnance as referred to in JSSS 1.38 [*Unexploded Ordnance (UXO)*].~~

~~(2) The delivery, storage and/or use of harmful, dangerous or explosive materials, chemicals, gases or the like to be used in the Works or for use in or which are the product of the manufacturing or treatment process of the finished Works or in Operational Areas.~~

~~(3) Welding work, hot cutting work or demolition work.~~

~~(4) Work in areas where Contractor's Personnel are already performing work that may become more hazardous if anyone other than authorised personnel enter, for example Scaffolding erection, use and dismantling, and areas where Contractor's Equipment is operating and the HSO considers there to be a risk of any accident.~~

~~(5) Work in areas where very hot or cold objects are being handled and/or the working area itself is extremely hot or cold.~~

~~(6) Work in areas where there is potential exposure to harmful radiation or ultrasound.~~

~~(7) Work in areas where the concentration of gases, dust and any other dangerous or harmful materials exceed the limits specified in JSSS 2.1 [*Work Environment*].~~

~~(8) Work in areas where Permanent Works or Temporary Works have not been performed completely or properly and/or which are therefore unsound, unstable or unsafe.~~

(9) ~~Work in areas under, within or adjacent to existing buildings, roads, bridges or other structures which are unstable and/or unsafe and which pose risks to safety unless additional support and strengthening measures are implemented.~~

(10) Work ~~or work~~ in ~~areas which may have been damaged and otherwise rendered dangerous by adverse climatic, natural or seismic conditions.~~

2.4 SPOTTERS~~, FLAGMEN AND THE LIKE~~ (JC127)

2.4.1 Definitions

~~In accordance with the definition provided in~~ For the definition of "Spotter", refer to JSSS Annex1.1 [*Definitions and Abbreviations*], ~~a reference to either "Spotter" or "Flagman" in JSSS shall be deemed to include a reference to the other or both and therefore references in this Chapter are to Spotters, which shall be deemed to include both.~~ (JC127)

JC127: 文章中に Flagman という言葉が使われていません。There is no term of Flagman in the text of JSSS.
Deleted and added.

2.4.2 Duties

Duties include for example:

(1) Preventing unauthorised personnel from entering areas where Dangerous Work is being carried out.

(2) Giving appropriate guidance and signals during operation of Contractor's Equipment to prevent the equipment tipping, overturning or falling.

(3) Giving appropriate guidance and signals to prevent Contractor's Personnel from being struck or pinned by Contractor's Equipment.

(4) Assisting drivers of vehicles including trucks and operators of other Contractor's Equipment in positioning their vehicles particularly when manoeuvring.

(5) Directing operators and drivers to prevent Contractor's Personnel, Contractor's Equipment, Goods in transit, transport and the like from coming into contact with Overhead Services as defined in JSSS Chapter 3 [*Existing Underground, Concealed and Overhead Services*] when working within close proximity and preventing same from encroaching upon minimum allowable distance from Overhead Services.

(6) Controlling pedestrian and vehicular traffic, Contractor's Personnel and Contractor's Equipment on roads and footpaths on or adjacent to the Site, adjacent to buildings, Operational Areas, places with poor visibility, slopes and vertical drops, places where there is risk of falling or landslide and places where excavation and transporting equipment perform excavation works close to workers.

(7) Monitoring working locations and conditions and preventing any persons from entering areas where Dangerous Work is being carried out or where there is any risk of potential injury and accident.

(8) Any other similar duties and assistance.

2.4.3 Placement

(1) The Contractor shall provide Spotters as appropriate to the Site situation and the work methods employed.

(2) The Contractor shall ensure that the Spotters are informed about the Site conditions and accident prevention.

2.4.4 Safety

The Contractor shall:

(1) Ensure the safety of Spotters when directing vehicles or Contractor's Equipment.

(2) Ensure that Spotters and drivers agree on hand signals before assisting with vehicle manoeuvring.

(3) Instruct Spotters to maintain visual contact at all times with the driver during vehicle manoeuvring.

(4) Instruct drivers to stop manoeuvring immediately if they lose sight of the Spotter.

(5) Not give Spotters additional duties while they are already acting as Spotters.

(6) Instruct Spotters not to use personal mobile phones, personal headphones, or other items which could pose a distraction during spotting activities.

(7) Provide Spotters with high-visibility clothing, especially during night operations.

2.4.5 Signals

(1) To avoid the risk of injury to the Contractor's Personnel when operating Contractor's Equipment, the Contractor shall establish a standardised signal system and appoint a Spotter to give necessary signals to the Contractor's Personnel.

(2) The Contractor shall ensure that all Contractor's Personnel understand and comply with the signals relating to their assigned work task. (JC128)

JC128: added.

(3) The Contractor shall inform and remind all Contractor's Personnel including those designated as Spotters, of the established standardised signal system as follows:

(a) By training all personnel when they first start work at the Site;

(b) By re-confirming with the all personnel in the TBM before the start of work each day; and

(c) By posting signboards on Site where required showing the standardised signals and placing a smaller-sized sticker version directly on the concerned Contractor's Equipment.

2.4.6 Qualification of Personnel

The Contractor shall ensure that all Spotters possess sufficient experience and ability and are adequately trained and supervised to perform their duties.

2.4.7 Communication Tools

The Contractor shall, when necessary, provide and maintain any necessary equipment such as hand-held radios, to ensure effective and safe communications and train all Spotters in their use.

2.4.8 PPE

The Contractor shall ensure that all Spotters are provided with PPE including hats, whistles, high visibility jackets, flags, illuminated batons, etc. to safely and adequately perform their duties.

2.5 FALL PREVENTION

2.5.1 General Items

(1) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for fall prevention complying with the technical requirements specified in OSHA Standard Part 1926, Subpart E "Personal Protective and Life Saving Equipment", and Subpart M—"Fall Protection" ~~of "Part 1926 - Safety and Health Regulations for Construction"~~ and as follows:-(JC129)

(a) Requirements relating to fall protection for workers on scaffolds in Subpart L;

(b) Requirements relating to fall protection for workers on cranes and derricks in Subpart CC;

(c) Fall protection requirements for workers performing steel erection work (except for towers and tanks) in Subpart R;

(d) Requirements relating to fall protection for workers on certain types of equipment used in tunnelling operations, underground construction, caissons, cofferdams and compressed air in Subpart S;

(e) Requirements relating to fall protection for workers engaged on the erection of tanks and communication and broadcast towers in Subpart E §1926.105 (Safety Nets);

(f) Requirements relating to fall protection for workers on aerial lifts or poles, towers, or similar structures while engaged in the construction of electric transmission or distribution lines or equipment in Subpart V, Electric Power Transmission and Distribution; and

(g) Requirements relating to fall protection for workers working on stairways and ladders are provided in Subpart X, Stairways and Ladders.

(2) This Section provides fall prevention solutions for a typical range of example circumstances but this is not intended to be restrictive in extent. The Contractor shall provide fall prevention solutions wherever demanded by the nature of the particular part of the Works.

(3) As a general rule, the Contractor shall take ~~fall restraint system~~ Personal Fall Restraint System (PFRS) measures wherever practicable rather than ~~fall arrest system~~ Personal Fall Arrest System (PFAS) measures. (JC129)

~~(4) JSSS 2.5 [*Fall Prevention*] shall be read in conjunction with other respective parts of JSSS.~~(JC129)

JC129: deleted and modified.

2.5.2 Height Thresholds

The threshold for fall protection in construction work is 2 m.

The Contractor shall provide fall protection for all personnel, removing all fall hazards whenever any personnel are working 2 m or more above a lower level.

2.5.3 Facilities for Ascending and Descending

When carrying out work at heights of 2 m or more, the Contractor shall provide facilities that enable the Contractor's Personnel to safely ascend and descend from such work levels.

2.5.4 Risk Assessments

(1) Where there is any risk of fall for any part of the Works at the Site, the Contractor shall conduct a pre-assessment of the various types of fall protection systems to be used and the selected alternatives shall be shown in the Safety Plan.

(2) In advance of the commencement of any parts of the Works, the Contractor shall carry out such further risk assessment as necessary, including checking the following and recording the results:

(a) Work areas and the conditions of adjacent areas;

(b) Position, condition and surroundings at each anchorage for separately securing working line, lifeline or nets;

(c) Status of access leading to work areas and any anchorages; and,

(d) The presence or absence of protrusions where there is a risk of cutting or chafing of working line or lifeline or other fall prevention systems and their position and condition.

2.5.5 Handrails

(1) The Contractor shall provide handrails at places where there is risk of fall.

(2) Handrails shall be complete with top-rails, minimum 85 cm high and mid-rails at a height of 35 - 50 cm.

(3) Top-rails shall be designed to withstand 90 kgf. of horizontal force and mid-rails 70 kgf. (JC130) of horizontal force and sufficient uprights shall be provided to sustain these forces.

JC130: added.

(4) Handrails shall be fit for purpose, of rigid and sound condition, securely fixed, without excessive corrosion, deformity or damage of any kind.

(5) If handrails are temporarily removed for example to permit work to be carried out, the Contractor shall provide alternative safety measures including for example:

(a) Displaying appropriate warning signs;

(b) Assigning a Spotter to direct non-essential Contractor's Personnel away;

(c) Providing alternative fall prevention systems to Contractor's Personnel in that area including for example PFRS or PFAS or safety nets;

(d) Prohibiting entry to the working area of any unauthorised Contractor's Personnel; and

(e) Handrails shall be restored immediately after the necessity for removal has ended.

2.5.6 Toeboards

(1) Toeboards shall be provided to bottom of all handrails to prevent risk of Falling Objects.

(2) Toeboards shall be minimum 10cm high from top edge to the level of the Working Platform, runway or ramp.

(3) Where material ~~,~~ is piled to such height that a 10cm toeboard does not provide protection, panelling from floor to mid-rail, or to top-rail shall be provided. (JC131)

JC131: added and modified.

2.5.7 ~~Temporary Access Around the Site~~ Preventing Falls from Walkways (JC132)

JC132: revised.

(1) Walkways

For the purposes of interpretation:

"Walkways" mean route or passage for safe movement of pedestrians including walkway, bridge type walkway, covered walkways, ramp, ladders and stepladders.

(2) Safe Routes

The Contractor shall provide walkways leading to, within and around the Site and any working areas within the Site.

These shall be designed and constructed to ensure the safe passage of Contractor's Personnel and shall be provided with temporary lighting and effectively maintained at all times.

The Contractor shall display signs clearly indicating the location, intended use and any restrictions and extent with directions so that the Contractor's Personnel can adhere to the routes.

Other construction activities will be prevented from obstructing these routes.

(3) Handrails

At any point where there may be a risk of Contractor's Personnel falling from temporary walkways, the Contractor shall provide handrails as specified in JSSS 2.5.5 [*Handrails*].

Alternatively, the Contractor shall provide fall prevention equipment with the same or better functionality.

2.5.8 Preventing Falls by Providing Temporary Working Platforms

(1) The Contractor shall provide a temporary Working Platform where Contractor's Personnel are carrying out any operation at a height 2 m or more above the base and where there is any risk that Contractor's Personnel may fall. (JC133)

(2) Temporary Working Platforms shall be constructed from steel tubular scaffolding, system scaffolding or other safe and secure types.

(3) Temporary Working Platform shall always have handrails. (JC133)

(4) If handrails are temporarily removed for construction purposes, the Contractor shall take the measures described in JSSS 2.5.5 [*Handrails*]

2.5.9 Preventing Falls from the Ends and Openings of Working Platforms

(1) The Contractor shall take measures to prevent any falls from ends, edges and around any openings in Working Platform. (JC133)

(2) The Contractor shall provide handrails to all ends, edges and openings.

(3) Alternatively, the Contractor may place covers over any openings, each of sound construction and designed with a bearing capacity of at least twice any likely superimposed load, including any materials, Plant or Contractor's Personnel.

(4) If for any reason it is not possible to provide handrails around working areas, or to provide covers or when covers are temporarily removed for construction purposes, the Contractor shall take the measures described in JSSS 2.5.5 [*Handrails*].

JC133: modified.

2.5.10 Measures for Preventing Falls during Excavation Work

The Contractor shall take all necessary measures to prevent falls during excavation work including for example:

(1) Providing fall prevention systems including temporary handrails or barriers, PFRS, PFAS or rope access.

(2) Taking appropriate measures to ensure that earth slopes do not collapse due to the fixing of any fall prevention system or to any contact of the ropes with the slope surfaces.

(3) Providing safe measures to allow Contractor's Personnel to escape from or move around any excavated slope. If it is not possible to take such measures due to the nature of the work, the Contractor shall install main ropes and have Contractor's Personnel use PFRS or PFAS. In such case, the main ropes shall be anchored securely to prevent them becoming loose or detached.

(4) Installing handrails where the slope shoulder is used as a walkway or passageway.

(5) Installing safe crossings over trench excavations at a maximum of 30m intervals and prohibiting all Contractor's Personnel from crossing on the shoring system.

(6) Providing safe means of access and egress using stairways, ladders, ramps and the like to all excavations such as trench, basement, footing excavations, which are 1.2 m or more in depth, generally requiring no more than 7.5m of lateral travel for Contractor's Personnel.

(7) Prohibiting all Contractor's Personnel from crossing on struts of Earthwork-Support.

2.5.11 Measures for Preventing Falls during Rope Access Work

(1) The Contractor shall take all necessary measures to prevent falls during rope access work including for example:

(a) Installing a lifeline to which the PFAS is attached in addition to the working line to which the PFRS is attached; and

(b) Ensuring that the working line, lifeline and harness have sufficient strength and that they have not suffered any damage, abrasion, deformation or corrosion and that the Contractor's Personnel are trained in the use and that they use them properly.

(2) In relation with the working line, lifeline and harness, the Contractor shall ensure that:

(a) The working line and lifeline are securely anchored to independent rigid supports vertically above the work location and cannot be detached;

(b) The working line and lifeline are of sufficient length to allow the Contractor's Personnel to move up and down safely;

(c) Measures have been taken to prevent cutting or chafing, such as providing covers, where there is a risk that the working line or lifeline may be cut or chafed due to protrusions;

(d) That the working line is anchored to two or more independent strong supports; and

(e) The positioning device shall be securely connected to the working line with connectors and the connecting devices shall be compatible with the working line used.

(3) The Contractor shall provide the following particular information in the Safety Plan and shall ensure that all Contractor's Personnel engaged in rope work are fully qualified and informed when doing so, including advising them of:

(a) Location of each anchorage used to secure the working line and lifeline;

(b) Types and strengths of the working line and lifeline to be used;

(c) Lengths of the working line and lifeline to be used;

(d) Protrusions where the ropes may be cut or chaffed and measures to prevent this; and

(e) Measures to prevent Contractor's Personnel engaged in securing the working line

and lifeline to the anchorages from falling.

(4) The Contractor shall also provide measures to prevent the risk of accident to any personnel from Falling Objects; by using covered walkways and PPE.

(5) The Contractor shall appoint an Operation Leader who shall work with the rope work team at all times throughout their assignment and direct the work based on the Safety Plan and perform the following duties:

(a) Inform all Contractor's Personnel engaged in rope work of the content of the Method Statement and Safety Plan before commencement of the work; (JC134)

(b) Check all equipment to be used on the day prior to commencement of the work, and repair, maintain or replace any equipment immediately if any defect is identified;

(c) Permit the Contractor's Personnel to commence work only after the measures have been taken to provide all working lines, lifelines, PFRS, PFAS and PPE; and

(d) Ensure Contractor's Personnel use PFRS, PFAS correctly, and, have them fix the PFAS to the life lines. (JC134)

JC134: added.

2.5.12 Further Measures for Contractor's Personnel

The Contractor shall take all necessary further measures to prevent falls during the Works including, for example, taking the following measures before any work commences:

(1) Conduct safety induction and education courses regarding fall risks for all Contractor's Personnel who shall work on locations and operations where there is a risk of falling.

(2) Prohibit the unauthorised removal of any fall prevention equipment and educate Contractor's Personnel on the dangers of this action.

(3) Educate Contractor's Personnel on the proper storage and management of all safety equipment, including for example PFRS, PFAS and PPE.

(4) Stop the work if there is a risk of bad weather such as strong wind, heavy rain, or snow.

2.5.13 PPE for Fall Prevention

The Contractor shall comply with the following requirements when Contractor's Personnel are subject to fall risks:

(1) The Contractor shall provide PFRS as follows:

(a) PFRS shall be the same as PFAS specified below but designed to restrict the movement of workers and prevent them from reaching the edge of or any openings in the working area and therefore eliminating the risk of a fall; and

(b) ~~PPE for~~ PFRS shall comprise of either a Safety Belt or Safety Harness, together with an anchorage, connectors and other necessary equipment, typically including a lanyard, lifeline and other devices. (JC135)

JC135: Deleted.

(2) The Contractor shall provide PFAS as follows:

(a) The PFAS shall be the full harness type and shall comprise of a body harness, connectors, lanyard, deceleration device, lifeline, anchorage, or suitable combination of these;

(b) The use of a Safety Belt for PFAS is prohibited except where there is any risk of the Contractor's Personnel hitting the lower surface when the full harness type is used and the total fall clearance distance calculated as below, is less than the

distance between the point at which a worker would be anchored and any lower level;

The total fall clearance distance for PFAS with a shock-absorbing lanyard is calculated as the total of free fall distance, deceleration distance, D-ring shift, back D-ring height, and safety factor. (Refer to OSHA Technical Manual General Information, Section V: Chapter 4 Fall Protection in Construction, III. Measurements for Assessing Fall Hazards and Controls, A. Total Fall Clearance Distance for PFAS.)

(c) PFAS shall withstand the total force exerted on the system by the Contractor's Personnel falling, including the weight of the system itself; and

(d) For shock absorbers, an appropriate specification and type shall be selected according to the free fall distance calculated from the Contractor's Personnel's working position (height of anchor point, length of lanyard, etc.).

(3) The PFRS and PFAS shall bear the name of the manufacturer and the date of manufacture and shall be easily visible.

(4) Inspection of any safety equipment

Before starting work using PFRS or PFAS, the systems and anchorages to which the systems are to be attached shall be inspected and defective, damaged, worn-out or missing parts or components shall be replaced.

2.5.14 Portable Ladders and Stepladders

For further requirements, refer to JSSS 6.4 [*Walkways, Ladders and Stepladders*]

2.5.15 Work on Roofs and Other Areas

(1) Where Contractor’s Personnel are carrying out work on roof at a height of 2 m or more, PFRS or PFAS shall be used with secure and safe anchorages.

(2) The Contractor shall, ensure that PFRS or PFAS are inspected before each use and declared safe for use with no defective, damaged, worn-out or missing parts or components.

(3) Prevention of Fall Risks on Floors, Fragile Roofs and Other Surfaces

When working on, accessing or crossing, floor or roof areas (including uncompleted areas under construction), or fragile roofs such as those covered with slates, tiles or other non-loadbearing coverings or where there is any risk of breaking and/or (JC136) falling through such areas, the Contractor shall provide continuous bearing boards for workers to walk on, with a minimum width of 60 cm or sufficiently wider to provide safe transit and where necessary to spread the bearing load on the surface and avoid penetration. The boards shall be fixed together and secured to the underlying surface by tying with ropes or clips to prevent any movement.

Unless otherwise approved by the HSO, handrails shall be provided to one or both sides.

If the underlying surface or roofing is too fragile for such measures and access is required, the Contractor shall provide an independent scaffolding boarded walkway with handrails both sides, which does not bear upon the existing roof but that is supported independently by a Scaffolding structure. (JC136)

JC136: added and modified.

(4) Demolition or Alteration of Buildings and Structures

When carrying out demolition or alteration of buildings or structures and where there is a risk of Contractor’s Personnel falling, the Contractor shall take the following measures:

(a) Appoint an Operation Leader to be engaged on the work;

(b) Safely supervise the work; and

(c) Inform and train Contractor's Personnel engaged in the said work so that they are aware in advance of the work methods and procedures.

2.5.16 Safety Nets

(1) The Contractor shall provide safety nets when workplaces are more than 7.50m above the lower ground level or water surface level and where the use of another type of fall prevention system is impractical or has been removed.

(2) Operations shall not be undertaken until the net is in place and has been inspected and tested.

(3) Nets shall extend 2.5m beyond the edge of the work surface where Contractor's Personnel may be at risk and shall be installed as close under the working surface as practical but in no case more than 7.50m below such work surface.

(4) Nets shall be hung with sufficient clearance to prevent user's contact with the surfaces or structures below. Such clearances shall be determined by impact load testing.

(5) The mesh size of nets shall not exceed 15 cm by 15 cm. All new nets shall bear a label of proof test from the manufacturer that they can withstand 23,700 Nm minimum impact resistance. Edge ropes shall provide a minimum breaking strength of 2,270kg.

(6) Forged steel safety hooks or shackles shall be used to fasten the net to its supports.

2.6 FALLING OBJECTS

2.6.1 General

The Contractor shall take all necessary measures to avoid danger and prevent damage and injury to Contractor's Personnel, Employer's Personnel and any other persons including third parties that are on or adjacent to or in the vicinity of the Site whether connected with the Works or otherwise, and who may be at risk from Falling Objects.

In general, this shall be accomplished by:

(1) Providing secure temporary barriers to prevent or capture Falling Objects, designed by the Contractor to be of sufficient strength to capture all Falling Objects without perforating and where necessary shall be of an aesthetic design to be approved by the Engineer.

(2) Providing a safe means of raising and lowering Goods, tools, waste and debris.

(3) Providing an exclusion zone with temporary barriers and all other necessary measures to prevent persons and traffic from entering areas where Falling Objects could be a risk, including providing pedestrian and traffic diversions.

Exclusion zone shall also be provided where protective mesh sheets or toeboard are not installed or where they are temporarily removed due to the nature of the work

(4) Using PPE.

(5) Providing coloured warning tape, barriers and signage warning of "DANGER FALLING OBJECTS" in addition to all other preventive measures.

2.6.2 General Preventive Measures

(1) All horizontal boarded areas of scaffolding shall be provided with substantial and continuous toeboards to all edges in accordance with JSSS 2.5.6 [*Toeboards*].

(2) Mesh sheet (debris net) shall be provided under and around all edges to cover all openings of Scaffolding horizontal boarded areas.

(3) Continuous and secure debris nets shall be provided to vertical sides of all Scaffolding or openings of external walls where there is no Scaffolding.

(4) Safe walkways with secure roof and walls shall be provided over entrances and exits.

(5) Protective canopies, safety fans or projecting shelves shall be provided to the edge of all roofs and to all vertical faces wherever there is a risk particularly over entrance and exits, working areas, walkways and roads, including those on areas beyond the Site boundary.

(6) Protective roofs shall be provided wherever there is a risk over working areas, walkways, footpaths and roads.

(7) All protective structures including roofs, canopies, safety fans, projecting shelves over walkways shall be fit for the purpose intended and provide a secure protective barrier capable of supporting Falling Objects and of sufficient size and dimensions to give full coverage and protection.

(8) Personnel must be prevented from entering any areas below Scaffolding where there is a risk of Falling Objects through the provision of barriers and signage. (JC137)

JC137: modified.

(9) If any protection is temporarily removed then a Spotter shall be assigned to prevent personnel entering the hazard area.

(10) A Spotter shall also be assigned to direct traffic and pedestrians where diversions are necessary.

(11) Use and control of mesh sheets to prevent objects from falling shall be as follows;

(a) Sheet shall have a mesh size of 12 mm or less or a mesh size corresponding to the size of expected Falling Objects;

(b) Sheet shall comply with BS 7955, composed of polyester material, reinforced as necessary to withstand the impact load of Falling Objects;

(c) Sheets that are damaged or which contain any irregularity shall not be used;

(d) If sheet is removed temporarily to suit the work operation, measures must be applied to avoid any risk of accident whilst it is removed and it must be restored immediately after the work operation is completed;

(e) Mesh sheets shall be inspected at least once a week and replaced immediately if any damage is found; and

(f) If there are any Falling Objects on the mesh sheet, these shall be removed before any work starts. The occurrence shall be reported to and investigated by the HSO to prevent any reoccurrence.

(12) When the work place is close to public or private areas, roads, footpaths, buildings or houses and the like along or outside the Site boundary and where there is any risk that Falling Objects could endanger the safety of traffic and third parties in such areas, and in addition to the above preventive measures, the Contractor shall take all responsibility, make all necessary arrangements with such third parties and/or all relevant authorities, insure, serve all notices, pay all charges and provide all necessary protective facilities and services including:

(a) Provision of mesh screens, safety fans, projecting shelves, temporary roofs over walkways or the like to protect such public or private areas, roads, footpaths, buildings or houses and all property, traffic, pedestrians and other persons thereon; and

(b) Safe and efficient diversion of all traffic and persons (in addition to the above or if the above measures cannot be taken) by providing all temporary barriers, signals, lighting and signs and placing a Spotter to direct traffic and pedestrians.

2.6.3 Falling Tools and Equipment

(1) The Contractor shall take appropriate measures to avoid the risk of injury or damage arising from dropped or falling tools including for example the following:

(a) Securing tools and materials;

(b) Use tool holsters, pouches, lanyards, etc.;

(c) Use debris nets, catch platforms or canopies to catch or deflect falling tools; and

(d) Use tethered tools, either with built-in connection points placed by the manufacturer or retrofitted connection points and connect tools to a lanyard. Tools can either be connected to a worker through a tool belt, harness or wristband, or anchored to a fixed structure.

2.6.4 Preventive Measures against Dust and ~~Windblown~~ Debris (JC138)

(1) For work where there is a risk of ejected or windblown dust and debris, (for example from stone crushing, concrete batching, cutting and grinding operations and the like), the Contractor shall:

(a) Enclose areas where such operations are taking place and provide protective screens or covers on storage areas;

(b) ~~Comply with the provisions of JSSS 4.2.2 [*Defects and Repair During Operation*] for small tools including equipment condition,~~ Maintain equipment and tools in

good condition, use of covers and safety guards and procedures for preventing danger due to tool breakage etc.; and (JC138)

JC138: deleted and added.

(c) Ensure that workers use appropriate PPE such as head, face and eye protection to prevent accident or injury.

(2) In strong winds and storms, the Contractor shall take measures to prevent wind-borne materials, etc. according to JSSS 2.7.3 [*Measures for Strong Wind and Storms]*.

2.6.5 Preventive Measures against Dropping Objects

(1) The Contractor shall prohibit Contractor's Personnel from throwing or dropping objects (e.g. Scaffolding clips), generally and in no event from heights of 3m or above.

(2) The Contractor shall use a crane to bring objects down from heights of 3m or above. Alternatively, the Contractor may provide enclosed chutes to bring down objects and in addition, shall prohibit entry to the chute area or assign a Spotter.

(3) Chutes shall be designed to prevent objects being scattered over the surrounding area.

2.6.6 Prevention of Accumulation of Goods at Height

(1) The Contractor shall prohibit the accumulation and storage of Goods at high levels particularly on Scaffolding and in locations where such Goods are at any risk of falling due to the effect of wind, vibration, water or gradient.

(2) Goods shall generally not be stored or allowed to accumulate within 1m of platform or work floor edges and openings or the like.

(3) When temporarily stored at height, Goods shall be restrained by ropes or sheets to prevent them from falling or slipping.

(4) Goods that are likely to scatter or spread, shall be suitably constrained by tying, boxing or bagging.

2.6.7 Working Above or Below Others

(1) As a general and prevailing rule, the Contractor shall prohibit his workers from working concurrently above or below other workers. To achieve this the Contractor shall carefully coordinate the work location, content, timing of the work operations between his assigned workers.

(2) In exceptional circumstances where this is unavoidable due to the nature of the work, the Contractor shall increase the supervision and the safety procedures described in this Section to ensure that the risk from Falling Objects is avoided. Workers shall be given further training, provided with PPE and additional working equipment (e.g. slings for tools, safety nets and/or hanging bags) in order to provide additional protection and a Spotter shall be assigned while such overhead operations are being carried out.

2.6.8 Loose Rock, Boulders and the Like

(1) If loose rock, boulders, trees and the like, are positioned above working areas and where there is any risk that these may pose a danger to Contractor's Personnel or Contractor's Equipment working below, unless otherwise instructed by the Engineer, the Contractor shall carefully remove such items and if necessary:

(a) Propose further safety measures to the Engineer;

(b) Consult with the Engineer and if appropriate, obtain the Engineer's Instructions for the required further measures to be taken, such as installation of temporary protective barriers; and (JC139)

JC139: added.

(c) Prohibiting Contractor's Personnel from entering the working areas until the above items have been removed or the further measures have been taken.

2.7 ADVERSE WEATHER REQUIREMENTS

2.7.1 Preventive Measures

(1) Whenever adverse climatic conditions render it ~~too~~ dangerous to continue, the Contractor shall stop affected work at the Site, take preventive measures to ensure the safety of all Contractor's Personnel engaged on that work and inform the Engineer accordingly.

(2) Before, during or after adverse climatic conditions, the Contractor shall:

(a) Stop work at heights if there is any danger of falling;

(b) Stop work if there is a possibility ~~of~~ that such work may be dangerous due to possibility of electrical shock, slippery conditions or poor visibility and the like during rain, snow or fog, and inform the Engineer accordingly;

(c) Inspect the Works and all Goods intended to be incorporated in the Works or used thereon (including any temporary structures) for damage and risk of causing any danger before resuming work. If any damage or risk is found, the Contractor shall immediately take necessary action to prohibit entry in accordance with JSSS 2.3 [*Prohibition of Entry – Dangerous Work*], inform the Engineer accordingly and if appropriate, request his instructions; and (JC140)

(d) Inspect Goods for damage and risk of any danger before resuming work. If any damage and risk is found, use Contractor's Equipment and Temporary Works only after making the necessary repairs or replacement.

JC140: deleted and added.

2.7.2 Measures for Heavy Rain

~~For~~ When heavy rainfall takes place or anticipated at the Site and the surrounding area, the Contractor shall: (JC141)

(1) Take measures to prohibit entry in accordance with JSSS 2.3 [*Prohibition of Entry – Dangerous Work*] at the following locations:

(a) Places where landslides could be anticipated;

(b) Places where there is a risk of flow of material and equipment and soil runoff; and

(c) Places where there is a risk of damage due to flash floods, lake or river flooding.

~~(2) Take measures such as evacuation of Contractor's Personnel and Goods to a safe place for preventing them from being submerged, washed away or overturning due to loosening of the ground.~~

~~(3) Take measures to protect temporary facilities from damage arising out of flooding or landslide, such as initially constructing them in safe locations, moving them to a safe place, reinforcing the ground and the facilities, diverting or drawing water from behind the facilities to prevent collapse.~~

(2) Take measures to prevent the Goods from being submerged, washed away or overturning, for example preparing, wherever possible, stock yard at a safe place, evacuating materials and equipment to a safe place, etc. (JC141)

JC141: deleted and modified.

2.7.3 Measures for Strong Wind and Storms

For strong wind and storms at the Site and the surrounding area, the Contractor shall:

(1) Take measures to prevent capsize, overturn or movement of Contractor's Equipment particularly ~~high~~ tall equipment such as cranes, pile drivers, pile drilling rigs and the like.

Where possible, lower the boom of ~~high~~ tall equipment and tie to a secure anchor with

steel cable to ensure stability and prevent any risk of overturning.

(2) Always store and/or if necessary evacuate Goods to a sufficient distance away from overhead power and communication lines to prevent damage and injury.

(3) Take the following measures, as necessary, for Scaffolding and Working Platforms.

(a) Remove or furl mesh sheets to reduce wind load;

(b) Prevent Scaffolding from collapsing or sliding by dismantling scaffolding or adding or reinforcing wall connectors;

(c) Dismantle or reinforce Scaffolding projecting from buildings by supporting ropes, cables or additional struts and bracing; and

(d) Securing Goods on Scaffolding, or lowering them to ground level.

(4) Discontinue work at elevated places.

(5) Take measures to prevent scattering of Goods, waste and debris. (JC142)

JC142: modified.

2.7.4 Measures for Heavy Snow and Ice

For heavy snow or ice at the Site and the surrounding area, the Contractor shall:

(1) Take fall prevention measures in snow such as setting of poles or red flags to demarcate roads, footpaths and waterways.

(2) Take fall prevention measures for workers in icy conditions or snow, by ice or snow removal on roads, platforms, stairs, ramps, slopes, passages, Scaffolding, canopies, safety fans, projecting shelves and the like.

(3) Remove snow from roofs, canopies and signs, notice boards.

(4) Prohibit works on Scaffolding, Working Platforms or staging if snow or ice is present except after its careful removal. (JC143)

JC143: modified.

2.7.5 Measures for Lightning

Where there is any risk that lightning may affect work on or near tall objects, or near explosives or conductive materials, the Contractor shall take the following safety measures:

(1) The Contractor shall follow the recommendations of OSHA as described in their Fact Sheet [refer to *https://www.osha.gov/Publications/OSHA3863.pdf*] (JC144) and when thunder is heard, or when information is obtained by lightning detector or radio, the Contractor shall ensure that all Contractor's Personnel engaged on outdoor work, immediately cease work and move to a safe shelter namely a substantial building with electricity or plumbing or an enclosed, metal-topped vehicle with windows closed (but not excavators, cranes, tracked or similar types of Contractor's Equipment).

JC144: web のリンクを張られている箇所がここを含めて 2 か所のみ（もう一つは 2.9.1（8））あるのですが、こういうやり方でなければ引用できないのであれば残す、そうでなけれ別の引用方法を考えることとしてください。

There are two locations in JSSS which refer to website (another is 2.9.1 (8)). If it is essential/avoidable to specify requirements by method of referring to the websites, they will be left as they are, if not please propose another method to refer to.

(2) Contractor's Personnel shall remain in the safe shelter for at least 30 minutes after the last sound of thunder is heard.

2.7.6 Measures for Earthquake and Tsunami

To the extent that time is available and forewarning is given, the Contractor shall evacuate workers to the designated meeting place in the event of earthquakes or tsunamis when the relevant authority issues a warning for the occurrence or prediction of earthquakes or tsunamis.

2.7.7 Inspection of Temporary Works after Adverse Weather and Earthquake

Following the occurrence of any adverse weather or after any earthquake and before re-commencing any work, the Contractor shall:

(1) Perform a visual inspection.

(2) Check all measured values of any instruments to ensure the safety of Temporary Works.

(3) When abnormality (JC145) is found in instruments, recalibrate or replace them.

(4) If any damage or fault is found in the TW, immediately carry out repair, replacement and/or reinforcement works, as necessary.

(5) Keep the Engineer informed of inspection and monitoring results.

JC145: malfunctioning or damage?

(3) Up to here, JICA comments and NK modification are inserted by NK on 2020/7/29.

2.8 FIRE PREVENTION

2.8.1 Fire Prevention and Firefighting Facilities

Unless otherwise specified in the Particular Safety Specification, the Contractor shall take measures and provide facilities for fire prevention and fire-fighting and shall ensure that such measures are readily available and at all times at the Site and at any offices and accommodation for Contractor's and Employer's Personnel.

(1) Fire Response Plan:

The Contractor shall:

(a) Prepare a Fire Response Plan detailing the proposed fire prevention and fire-fighting measures and facilities and include this as a part of the Safety Plan;

(b) Designate a person (or persons) responsible for fire prevention, fire-fighting and also for evacuation in the event of a fire;

(c) Prepare a firefighting training plan as a part of the fire prevention and fire-fighting plan; and

(d) Carry out all training and keep records of such training in accordance with JSSS 1.19.6 [*Records of Education and Training*].

(2) Fire Response Measures and Facilities:

The Contractor shall:

(a) Provide fire hoses, hose-reels, fire hydrants and similar equipment, and temporary water supply where considered necessary by the HSO;

~~(b) Ensure that an adequate temporary water supply is available as and when required;~~ (JC145)

(c) Provide fire extinguishers and fire blankets according to the area and purpose of use, such as for ordinary fires, oil fires, electric fires and the like;

Fire extinguishers shall be regularly inspected, refilled, serviced and certified as such by a qualified and independent safety company approved by the Engineer; and

(d) Prohibit smoking anywhere on the Site other than designated smoking areas, and implement effective fire prevention measures by placing buckets filled with water or sand in smoking and other dangerous areas.

(e) Train Contractors Personnel and ensure that a team or teams is available to respond in the event of a fire and in advance or in place of attendance by any public firefighting service.

JC145: added and deleted.

2.8.2 Measures for Evacuation

In the event of a fire, the Contractor shall facilitate evacuation by:

(1) Creating an evacuation route map if necessary and post this in easy-to-see places.

(2) Display the evacuation routes as necessary at all work places.

(3) Install multiple evacuation routes and staircases for buildings with 2 or more floors and a capacity of 30 people or more~~, or in the shafts and for underground work~~. (JC146)

JC146: deleted as it is impossible in places such as tunnel.

(4) Establish a communication method to inform the Contractor's Personnel, Employer's Personnel and any other persons that are on the Site so that they are aware of danger and

that they must evacuate due to a fire.

2.8.3 Management of Flammable and Combustible Materials

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS and unless otherwise approved by the Engineer, the Contractor shall take necessary measures for fire prevention complying with the technical requirements specified in ~~OSHA Subpart F, Fire Protection and Prevention 1926. 152 for the usage and storage of flammable and combustible materials or 1926. 153 Liquefied petroleum gas (LPG) or other relevant OSHA standards for other flammable or combustible materials,~~ OSHA Standard Part 1926, Subpart F, 152 "Flammable liquid", 153 "Liquefied petroleum gas (LPG)" or other relevant OSHA standards for the usage and storage of flammable and combustible materials (JC147)and gases, including ~~for example:~~ (JC148) gasoline, kerosene, light oil, heavy oil, creosote oil, gear oil, cylinder oil, and other lubricating oils and organic solvents such as acetone, toluene, LPG and other gases including oxygen, acetylene etc. (hereinafter collectively referred to as "flammable and combustible materials" in this Section).

JC147: 正確に表現してください。

Please express correctly.

OSHA Standard Part 1926, Subpart F , 152"Flammable liquid", 153 "Liquefied petroleum gas (LPG)" or other relevant OSHA standards

NK: modified as above comment.

JC148: deleted.

In addition, the Contractor shall:

(1) Appoint a person who is appropriately qualified, skilled and experienced in handling flammable and combustible materials, to be responsible for the storage and handling flammable and combustible materials and notify the name of such person to the Engineer.

(2) Store flammable and combustible materials in a purpose-built building or compound, fit for the intended purpose, well ventilated and secure, and protecting the stored materials from direct sunlight and extreme heat.

(3) Take measures to prohibit entry to unauthorised personnel and display signage prohibiting the use of flame.

(4) Determine handling methods of flammable and combustible materials, which shall be notified to the Engineer, and ensure Contractor's Personnel are fully aware of the methods.

(5) Provide fire prevention and firefighting facilities appropriate to the stored flammable and combustible materials.

2.8.4 Fire Prevention Measures for Electric and Gas Welding and ~~Gas~~ Cutting (JC149)

The Contractor shall refer to and comply with JSSS 6.8 [*Electric and Gas Welding and Cutting*] for the fire prevention requirements for electric and gas welding and cutting works.

JC149: deleted.

2.9 PPE AND FIRST AID

2.9.1 PPE

(1) General

(a) Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the Contractor shall provide all necessary and required PPE free of ~~any~~ charge, to all Contractor's Personnel, ensure that this is used properly, kept in good condition and replaced in the case of being worn-out, lost or damaged; (JC149)

(b) PPE shall comply with the ~~additional~~ requirements of this Section; (JC149)

(c) The Contractor shall ensure as a minimum and mandatory requirement, that all Contractor's Personnel are provided with the following PPE and the Contractor shall make sure that all Contractor's Personnel wear or use such PPE as appropriate whenever they are on the Site:

(i) Head Protection; and

(ii) Protective Footwear.

(d) The following additional PPE shall be provided whenever required by the working environment:

(i) Eye and Face Protection;

(ii) Ear Protection;

(iii) Respiratory Protection;

(iv) PPE for PFRS and PFAS (Safety Harnesses, Safety Belts and the like);

(v) Gloves; and

(vi) Body Protection.

(e) The particular requirements for PPE are not repeated in each Section of JSSS but appropriate PPE must always be provided by the Contractor.

(f) PPE described (4) to (11) are mere examples but not exhaustive, and the Contractor shall provide further PPE at his cost to the Contractor's Personnel when and where any work requires specific PPE. (JC150)

JC149: deleted and added.
JC150: blanket 規定を入れた方が良い。added. It is better to specify blanket requirement.

(2) Additional Inspection, Testing and Maintenance

Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] and unless otherwise required by the manufacturer or approved by the Engineer:

(a) Frequently used PPE shall be inspected, tested and maintained at least once a month; and

(b) Occasionally used PPE shall be inspected before every use and tested and maintained at least once every three months.

The HSO shall also conduct regular checks to ascertain any requirements for the following:

(a) Inventory and reorder supplies;

(b) Follow-up with the manufacturer on maintenance issues; and

(c) Schedule of training and retraining. (JC151)

JC151: deleted and added.

(3) PPE Signage Requirements

(a) The Contractor shall display signage at specific places at the Site where the wearing of PPE is mandatory;

(b) Such signage shall include for example:

"Head Protection Must be Worn"

"Eye* Protection Must be Worn"

(* face, ear or other)

(4) Head Protection

Head protection shall protect workers' heads and necks against injury from falling or flying objects, risk of head bumping, hair getting tangled in machinery, chemical drips or splash, climate or temperature, reduce the impact from tripping or falling and protect against electric shocks.

Head protection shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.1: Applicable Standards for Head Protection

	Standard	Title of Standard
1	JIS T8131	Industrial Safety Helmets
2	ANSI Z89.1	Industrial Head Protection
3	BS EN 397	Industrial Safety Helmets

(5) Protective Footwear

Protective footwear shall protect against foot injury due to crushing by superimposed loads, impact injuries from dropped or Falling Objects, foot injuries from treading on sharp penetrating objects, injuries from electric shock and also shall increase adhesion preventing workers' from slipping and falling.

Protective Footwear shall have a variety of sole patterns and materials to help prevent slips in different conditions, including oil or chemical-resistant soles. It can also be anti-static, electrically insulating or thermally insulating, appropriate footwear shall be selected for the risks identified

Protective footwear shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.2: Applicable Standards for Protective Footwear

	Standard	Title of Standard
1	JIS T8101	Protective footwear
2	ASTM F2413	Standard Specification for Performance Requirements for Protective (Safety) Toe Cap Footwear
3	BS EN ISO 20346	Personal protective equipment - Protective footwear

	BS EN ISO 20349	Personal protective equipment. Footwear protecting against risks in foundries and welding

(6) Eye and Face Protection

Eye and face protection shall protect workers' eyes and face from harmful materials (for example dust, chemicals, liquid splash, flying objects, molten metal, ~~chemicals~~, gas and steam, extreme light, flashes and hazardous rays, dirt and debris, etc.) (JC152)

JC152: deleted and added.

Eye and face protection can include safety spectacles, goggles, face masks, face shields, visors and the like. Selected protection shall have the right combination of /impact/dust/splash/molten metal eye and face protection for the task and shall be selected for the risks identified.

Eye and face protection shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.3: Applicable Standards for Eye and Face Protection

	Standard	Title of Standard
1	JIS T 8141 JIS T 8142	Personal eye protectors for optical radiations Personal face protectors for welding
2	ANSI Z87.1	American National Standard for Occupational and Educational Personal Eye and Face Protection Devices
3	BS EN 166 BS EN ISO 4007	Personal eye protection. Specifications Personal protective equipment. Eye and face protection. Vocabulary

(7) Ear Protection

Ear protection shall protect workers' hearing against injury from continuous, loud or Intense Noise by providing soundproofing.

The Contractor shall ensure that workers are still able to receive and immediately react to oral instructions and danger warnings when wearing ear protection.

Ear protection shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.4: Applicable Standards for Ear Protection

	Standard	Title of Standard
1	JIS T 8161	Ear protectors
2	ANSI/ASA S12.6	Methods for Measuring the Real-Ear Attenuation of Hearing Protectors

3	BS EN ISO 4869-1	Acoustics. Hearing protectors. Subjective method for the measurement of sound attenuation
	BS EN ISO 4869-2	Acoustics. Hearing protectors. Estimation of effective A-weighted sound pressure levels when hearing protectors are worn
	BS EN ISO 4869-3	Acoustics. Hearing protectors. Measurement of insertion loss of ear-muff type protectors using an acoustic test fixture
	BS EN ISO 4869-4	Acoustics. Hearing protectors. Measurement of effective sound pressure levels for level-dependent sound-restoration ear muffs

(8) Respiratory Protection Equipment (RPE)

RPE shall protect workers' airways, lungs and related bodily systems against damage and injury from Harmful Substances or from oxygen-deficient atmospheres when other controls are either not possible or insufficient on their own.

Selection and use of RPE shall be in accordance with HSE publication HSG53 (Fourth edition, published 2013), (https://www.hse.gov.uk/pubns/priced/hsg53.pdf) (JC153), RPE must be both adequate and suitable, whereby:

JC153 same comment to 2.7.5. (JC144)

JC144: web のリンクを張られている箇所がここを含めて 2 か所のみ（もう一つは 2.9.1（8））あるのですが、こういうやり方でなければ引用できないのであれば残す、そうでなけれ別の引用方法を考えることとしてください。

There are two locations in JSSS which refer to website (another is 2.9.1 (8)). If it is essential/avoidable to specify requirements by method of referring to the websites, they will be left as they are, if not please propose another method to refer to.

(a) Adequate: – Is right for the hazard and reduces exposure to the level required to protect the wearer's health; and

(b) Suitable – Is right for the wearer, task and environment, such that the wearer can work freely and without additional risks due to the RPE.

RPE shall fit properly and filters shall be of the correct type as each filter is effective for only a limited range of substances. Filters have only a limited life and shall be changed regularly to maintain performance.

When replacing parts such as filters, use only manufacturers original parts, ensure that the correct type is selected and fit in accordance with the manufacturer's instructions.

Where there is a shortage of oxygen or any danger of losing consciousness due to exposure to high levels of harmful fumes, the Contractor shall only use breathing apparatus, never a filtering cartridge.

RPE shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.5: Applicable Standards for RPE

	Standard	**Title of Standard**
1	JIS T 8151	Particulate respirator

	JIS T 8157	Powered air purifying respirator
2	BS EN 149: 2001+A1: 2009	Respiratory protective devices. Filtering half masks to protect against particles.
	BS EN 14593-1: 2018	Respiratory protective devices. Compressed air line breathing devices with demand valve. Devices with a full-face mask.
3	ANSI Z88.2-2015	Practices for Respiratory Protection

(9) Safety Harnesses and Safety Belts

PPE for PFRS shall prevent the risk of workers falling from a height or sliding down slopes.

PPE for PFAS shall arrest a worker in a fall from a height or sliding down slopes.

For further requirements on PPE for PFRS and PFAS, refer to JSSS 2.5.13 [*PPE for Fall Prevention]*.

PPE for PFRS and PFAS shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.6: Applicable Standards for PPE for PFRS and PFAS

	Standard	**Title of Standard**
1	JIS T8165	Personal fall-arrest systems
2	ANSI Z359.0 to Z359.16	ANSI/ASSE Z359 Fall Protection and Arrest Standards Package
3	BS EN 361	Personal protective equipment against falls from a height. Full body harnesses

(10) Gloves

Gloves shall protect workers' hands from electric shocks, sparks during welding and fusing work, molten metal, heated metal, etc., and shall reduce the vibrations transmitted to workers' hands by tools, machines, etc.

Gloves shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.7: Applicable Standards for Gloves

	Standard	**Title of Standard**
1	JIS T 8113 JIS T 8114	Protective Leather Gloves for Welders Vibration isolation gloves
2	ASTM D120 ANSI S2.73	Standard Specification for Rubber Insulating Gloves Mechanical vibration and shock - Hand-arm vibration

3	BS EN 60903 BS EN 12477	Live working. Gloves of insulating material Protective gloves for welders

(11) Body Protection

If the HSO considers necessary, (JC154) Contractor's Personnel shall be supplied with and shall wear suitable body protection appropriate for the working environment.

JC154: added.

Risks such as from chemical or metal splash, spray from pressure leaks or spray guns, contaminated dust, impact or penetration, entanglement of own clothing, hot and extremely cold work; and the like shall be considered and avoided through the provision where necessary of special protective clothing. This may include for example flame-retardant, anti-static, chain mail, chemically impermeable, and high-visibility clothing and the like.

Body Protection shall be selected and provided for the risks to be identified.

Body Protection shall be kept reasonably clean and shall be replaced when worn out or damaged.

2.9.2 First-Aid

(1) General

The Contractor shall ensure that trained personal and adequate first-aid equipment and supplies shall be readily available at the Site. First-aid kits shall be stored at selected locations on the Site where they are most likely to be needed; they must be accessible with the minimum of delay.

(2) Training

A representative number of Contractor's Personnel selected by the HSO shall be trained in first aid (including cardiopulmonary resuscitation) to a minimum standard of that recommended by the International Federation of Red Cross and Red Crescent Societies standard course or equivalent.

(3) First Aid Kits

(a) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for first aid complying with the technical requirements specified in OSHA, 1910 Subpart K Medical and First Aid of Part 1910 - Occupational Safety and Health Standards".

(b) First Aid kits shall comply with ANSI Z308.1 and unless otherwise specified in the Particular Safety Specification, Class A first aid kits shall be provided at the working area(s) on Site and one Class B safety kit shall be provide at the sick bay.

(c) All persons working at the site need to be aware of their purpose and location. Adequate signage shall be provided at the Site to show the location of the first aid kit(s).

(d) Each first-aid kit shall contain the specified items and quantities listed in ANSI Z308 as follows:

(i) Adhesive Bandage;

(ii) Adhesive Tape;

(iii) Antibiotic Application;

(iv) Antiseptic;

(v) Breathing Barrier;

(vi) Burn Dressing (gel soaked);

(vii) Burn Treatment;

(viii) Cold Pack;

(ix) Eye Covering, with means of attachment;

(x) Eye/Skin Wash;

(xi) First Aid Guide;

(xii) Hand Sanitizer;

(xiii) Medical Exam Gloves;

(xiv) Roller Bandage;

(xv) Scissors;

(xvi) Splint;

(xvii) Sterile pad;

(xviii) Tourniquet;

(xix) Trauma pad; and

(xx) Triangular Bandage.

(e) Each first-aid kit shall contain any additional items and quantities that may be necessary according to the requirements and location of the Works.

(f) The Contractor shall ensure that the following additional items are provided with each first aid kit:

(i) A list of emergency phone numbers;

(ii) Flashlight and extra batteries; and

(iii) Bottled drinking water.

(g) To prevent disease transmission when giving first-aid, first-aid kits shall contain PPE such as disposable gloves, CPR breathing barriers, eye protection and like supplies.

(h) ~~Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] and unless otherwise required by the manufacturer or approved by the Engineer,~~ First aid kits shall be inspected ~~tested and maintained~~ at least once a month. (JC155)

The HSO shall also conduct regular checks to ascertain any requirements for the following:

(i) Inventory and reorder supplies;

(ii) Follow up with the manufacturer on maintenance issues; and

(iii) Schedule of training and retraining. (JC155)

JC155: deleted and added.

(4) Automated External Defibrillator – AED

(a) Unless otherwise specified in the Particular Safety Specification, and amongst any other first-aid equipment to be provided by the Contractor, the Contractor shall provide at least one AED at the Site;

(b) The AED shall be stored at a selected location on the Site where it is most likely to be needed and it must be accessible with the minimum of delay;

(c) All personnel at the site shall be kept informed of the purpose and location and the Contractor shall train a sufficient number of personnel in its use;

(d) Adequate signage shall be provided at the Site to show the location of the AED together with instructions for its use;

(e) ~~Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] and unless otherwise required by the manufacturer or approved by the Engineer,~~ The AED~~'s~~ shall be ~~inspected and maintained at least once per month~~ regularly ~~be~~ inspected in accordance with the manufacturer's instructions as follows: (JC156)

JC156: deleted and modified.

(i) Visually inspect looking for dirt, damage, or contamination;

(ii) Inspect electrodes ensuring that they are unexpired and in their original, sealed packages, two sets shall be provided;

(iii) Test primary battery;

(iv) Make sure a backup battery is stored with the AED and test backup battery; and

(v) Keep the AED charged and check it is maintaining a charge.

The HSO shall also conduct regular checks to ascertain any requirements for the following:

(i) Inventory and reorder supplies;

(ii) Follow up with the manufacturer on maintenance issues; and

(iii) Schedule training and retraining.

(f) The AED shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.7: Applicable Standards for AED

	Standard	Title of Standard
1	BS EN 60601-2-4:2011+A1:2019	Medical electrical equipment, Part 2-4: Particular requirements for the safety of cardiac defibrillators

CHAPTER 3: EXISTING UNDERGROUND, CONCEALED AND OVERHEAD SERVICES

3.1 UNDERGROUND AND CONCEALED SERVICES

3.1.1 General~~ly~~ (JC157)

JC157: General と Generally Clause レベルのタイトルで General と Generally が混在している。3.1.1 及び 3.2.1 を Generally から General に修正し、General に統一しています。但し、「〇〇 Generally」の様に何か具体的なものを冒頭においている場合には Generally のままにしてあります（例 6.1.1 Design and Provision of Temporary Works Generally）

There is mixed use of “General” and “Generally”. “General” is used For 3.1.1 and 3.2.1. “xxx Generally” to show concrete something is used for e.g. 6.1.1 Design and Provision of Temporary Works Generally.

(1) This Section applies where there are existing underground or concealed pipes, cables, wires, ducts and the like within the Site (hereinafter collectively referred to as “Underground or Concealed Services”), which may require locating, preserving, avoiding and protecting, diverting, removing, relocating or replacing by the Contractor. The Employer shall provide, at the request of the Contractor, such reasonable assistance as to allow the Contractor to carry out such work. (JC158)

JC158: added.

(2) If Underground or Concealed Services are the property of a relevant authority and unless otherwise specified in the Particular Safety Specification, the Contractor shall, in accordance with the agreement between the Employer and the owner of Underground or Concealed Services regarding the actual scope of work to be carried out, comply with the official regulations and procedures of the authority. (JC159)

JC159: added.

(3) In the case of Underground or Concealed Services which are the property of a third party, the Contractor shall take the procedure of obtaining permission for the work mentioned in (4) below.

(4) In accordance with the agreement between the Employer and the owner of Underground or Concealed Services regarding the actual scope of work to be carried out, permission for its execution and details of the procedures and requirements (including responsibility for insurance and safety procedures), the Contractor (with reasonable assistance of the Employer ~~and Engineer~~) (JC160) may consult with the owner of Underground or Concealed Services to obtain permission to execute the work following the preparations described in JSSS 3.1.2 [*Preparation and Work Planning*] as well as the requirements of the Contract and the instruction of the Engineer.

JC160: deleted.

(5) In the case of Underground or Concealed Services which are the property of the Employer, the permission mentioned in (4) above shall be deemed to have been provided by the Employer subject to the preparations described in JSSS 3.1.2 [*Preparation and Work Planning*].

3.1.2 Preparation and Work Planning

(1) Unless otherwise specified in the Particular Safety Specification, the Contractor shall make the following preparations prior to commencing any work for locating, protecting, diverting, removing, replacing or the like of any Underground or Concealed Services:

(a) Prepare a ~~detailed~~ (JC161) Method Statement describing the measures for carrying out the required work and ensuring the safety of all persons engaged thereon;

JC161: deleted.

(b) Prepare an emergency call list and communication procedure;

(c) Obtain particular information from the Employer or relevant authority on the procedures for emergency disconnection/de-energisation (JC162) of the Underground or Concealed Services in case of an accident;

JC162: added for utilities such as water supply pipelines . 配管等水系のユーティリティを考慮

(d) Provide and use cable avoidance tools or cable locators, trace the position and routes on ground surfaces, walls and floors of all Underground or Concealed Services, mark routes with paint and/or wooden pegs or barriers and clear signage and ensure that no unauthorised work take place within the area;

(e) Conduct careful exploratory hand excavation to locate the exact position, depth and route of the Underground or Concealed Services and proceed to expose and protect same or prepare for the required work; and

(f) The Method Statement shall be revised based on the information obtained from the above locating and exploratory work.

(2) In case Underground or Concealed Services of which existence are predicted at the Site, but not shown in the Contract, the Contractor shall inform the Engineer of the existence for the Engineer's instruction to the Contractor.

(3) Machine excavation shall not be allowed when there is any risk that Underground or Concealed Services may exist in the location or vicinity of the excavation.

(4) The Contractor shall take all measures necessary to ensure the protection and safety of road traffic, pedestrians, Contractor's Personnel and any other persons affected by or potentially affected by the Works as required by the Contract and also by JSSS including JSSS 2.2 [*Risk Control Around the Site*].

3.1.3 Requirements and Precautions

Unless otherwise specified in the Particular Safety Specification, the Contractor shall:

(1) Protect and secure all Underground or Concealed Services throughout the execution of the Works and avoid all damage to such services and adjacent areas, particularly when backfilling, compacting and reinstating surfaces.

(2) Take care not to damage the Underground or Concealed Services when using power tools for example asphalt cutting machine to break through paved surfaces above Underground or Concealed Services.

(3) Take care to safety (JC163) expose, support and protect any drains, other services (new or existing) which follow or cross the route of Underground or Concealed Services.

(4) Reinstate surface paving with material and methods specified, ~~paying attention not leave~~ without leaving (JC163)any difference in level with surrounding pavement and replace all surface markings and signage.

JC163: deleted and added.

(5) Adequately test all Underground or Concealed Services after completing any diversion, replacement or alteration work, to ensure the safety and integrity and to avoid any future risk of injury, leakage or pollution.

(6) Implement strict safety and fire prevention measures throughout the work including prohibiting the use of equipment that can create any damage or fire hazard (such as welding, cutting and electrical equipment) in the vicinity of any Underground or Concealed Services conveying flammable, combustible or explosive liquids or gases.

(7) Be aware of and avoid ~~all risk of~~ (JC164) electric shock when excavating for or near any cables, wires or cable ducts, ensure the safety of all Contractor's Personnel and ensure the provision and use of PPE.

(8) Be aware of and avoid ~~all risk of~~ (JC164) subsidence or collapse of excavations due to Contractor's Equipment, vehicles, other equipment or other activities being too close to any excavation.

JC164: deleted.

(9) Provide adequate temporary barriers, signage, markings and lighting to all areas where work on or adjacent to Underground or Concealed Services is taking place.

(10) Assign a full time Spotter in accordance with the requirements of JSSS 2.4 [*Spotters, Flagmen and the Like*] when work in progress poses any risk to the Underground or Concealed Services, Contractor's Personnel or the Works.

(11) Provide electrical cable marker tiles over all buried wires, cables and cable ducts to warn and protect against the risk of future mechanical damage to same.

(12) Provide permanent markers or signage at the surface to warn of the presence, route and any danger of any Underground or Concealed Services.

(13) Prepare as-built drawing of Underground or Concealed Services after completion of the associated work showing accurate positions, depth, sizes, routes and details and submit to the Engineer.

3.1.4 Information to Contractor's Personnel

Prior to the start of work to or in the vicinity of Underground or Concealed Services, the Contractor shall instruct relevant Contractor's Personnel of the following:

(1) Location of live cables and equipment.

(2) Risk of electric shock from live cables or equipment.

(3) Separation distances from live cables and equipment.

(4) Work procedure.

(5) Preventive measures against electric shock.

(6) PPE to be used.

(7) Electric shock treatment in accordance with JSSS 3.1.5 [*Electric Shock Treatment*].

(8) Response in the event of an accident in accordance with JSSS 1.24 [*Accident Response Plan*] and JSSS 1.25 [*Measures at the Time Accidents Occur*].

(9) Appropriate procedures in the case of accidents arising from contact with or damage to any other services.

3.1.5 Electrical Shock Treatment

The following measures shall be taken in the event of an electric shock accident.

(1) Prohibit workers from touching the chassis or body of any Contractor's Equipment or materials that have become electrified by any live circuit and keep all Contractor's Personnel well away from such equipment, materials and the working area.

(2) When the unit of Contractor's Equipment which is in contact with or in close proximity to a live circuit does not get an electrical shock, the operator shall immediately move the equipment to an adjacent safe location.

(3) When it is not possible to move the Contractor's Equipment away, the operator shall remain in the cabin until the affected live circuits are de-energised.

(4) Prevent secondary electric shock accident by permitting only those who have received training in electrical rescue to rescue the casualties of an electric shock accident.

(5) Immediately perform primary lifesaving measures such as CPR, if necessary use an

Automated External Defibrillator (AED) and call for emergency medical support.

(6) Report to the Engineer in accordance with JSSS 1.25 [*Measures at the Time Accidents Occur*] and where applicable to the representative of the relevant authority.

3.2 OVERHEAD SERVICES

3.2.1 General~~ly~~ (JC165)

JC165: deleted.

(1) This Section applies where there are exposed or overhead power or communication cables, wires, ducts, pipes and the like within the Site (hereinafter collectively referred to as "Overhead Services"), and which may require preserving, protecting, diverting, removing, relocating or replacing by the Contractor. The Employer shall provide, at the request of the Contractor, such reasonable assistance as to allow the Contractor to carry out such work. (JC166)

(2) If Overhead Services are the property of a relevant authority and unless otherwise specified in the Particular Safety Specification, the Contractor shall, in accordance with the agreement between the Employer and the owner of Overhead Services regarding the actual scope of work to be carried out, comply with the official regulations and procedures of the relevant authority. (JC166)

JC166: added.

(3) In the case of the Overhead Services which are the property of a third party, the Contractor shall take the procedure for the works mentioned in (4) below.

(4) In accordance with the agreement between the Employer and the owner of Overhead Services regarding the actual scope of work to be carried out, permission for its execution and details of the procedures and requirements (including responsibility for insurance and safety procedures), the Contractor (with reasonable assistance of the Employer and Engineer) may consult with the owner of Overhead Services to obtain a permission of the owner of Overhead Services to execute the works following the preparations described in JSSS 3.2.2 [*Preparation and Work Planning*] as well as the requirements of the Contract and the instructions of the Engineer.

(5) In the case of Overhead Services which are the property of the Employer, the permission mentioned in (4) above shall be deemed to have been provided by the Employer subject to the preparations described in JSSS 3.2.2 [*Preparation and Work Planning*].

3.2.2 Preparation and Work Planning

(1) Unless otherwise specified in the Particular Safety Specification, the Contractor shall make the following preparations prior to commencing any work for protecting, diverting, removing, replacing or the like of any Overhead Services:

(a) Prepare a detailed Method Statement describing the measures for carrying out the required work and ensuring the safety of all persons engaged thereon;

(b) Prepare an emergency call list and communication procedure; and

(c) Obtain particular information from the Employer or relevant authority on the procedures for emergency de-energisation of the Overhead Services in case of an accident.

3.2.3 Requirements and Precautions

Unless otherwise specified in the Particular Safety Specification, the Contractor shall:

(1) Protect and secure all Overhead Services throughout the execution of the Works.

(2) Adequately test all Overhead Services after completing any diversion, replacement or alteration work, to ensure the safety and integrity and to avoid any future risk of injury, leakage or pollution.

(3) Be aware of and avoid ~~all risk of~~ (JC167) electric shock when working near any cables or wires, ensure the safety of all Contractor's Personnel and ensure the provision and use

of PPE.

(4) Be aware of and avoid ~~all risk of~~ (JC167) subsidence or collapse of support structures of Overhead Services due to excavations being too close.

JC167: deleted.

(5) Provide adequate temporary barriers, signage, markings and lighting to all areas where work on or adjacent to Overhead Services is taking place.

(6) Provide insulating protective pipe or casings to the Overhead Services.

(7) Create safe zones free from danger arising from the use Contractor's Equipment by demarcating the route and turning ranges and providing adequate signage and barriers.

(8) Prevent Contractor's Equipment, wire ropes or chains from entering the safe zones and limit the moving range of crane jibs and other high equipment.

(9) Assign a full time Spotter in accordance with the requirements of JSSS 2.4 [*Spotters, Flagmen and the Like*] when work in progress poses any risk of close proximity or contact with Overhead Services, Contractor's Personnel or the Works.

(10) Maintain a safe separation distance between any charged electrical circuit and Contractor's Personnel, Contractor's Equipment, Scaffolding and any other Temporary Works, wire rope, tools and materials. The separation distance shall be the maximum relevant value shown in the following Table 3.2.1, any values that may be prescribed by the Laws ~~and regulations~~ (JC168) of the Country or any values that may be prescribed by the regulations of the relevant authority:

JC168: deleted.

Table 3.2.1: Safe Separation Distances

	Circuit Voltage	Separation Distance
1	Extra-high Voltage (7000V and above)	2m (20cm to be added for every 10,000V increase and fraction from 60,000V)
2	High Voltage (600V up to 7000V)	1.2m
3	Low Voltage (Less than 600V)	1m

3.2.4 Information to Contractor's Personnel

Prior to the start of work to or in the vicinity of Overhead Services, the Contractor shall instruct relevant Contractor's Personnel of the same items as listed in JSSS 3.1.4 [*Information to Contractor's Personnel*]

3.2.5 Electrical Shock Treatment

The Contractor shall take the measures prescribed in JSSS 3.1.5 [*Electrical Shock Treatment*].

CHAPTER 4: CONTRACTOR'S EQUIPMENT

4.1 GENERAL REQUIREMENTS

4.1.1 Scope

(1) This Chapter specifies the safety requirements for Contractor's Equipment which shall include mobile equipment, static equipment, small equipment, tools and electric power equipment as further described in the following paragraphs.

(2) The Contractor shall ensure the safety of all Contractor's Personnel, Employer's Personnel and any other persons that are on the Site, adjacent to the Site and other places where they may be affected by Contractor's Equipment in operation, standby or storage or when such equipment is being maintained or transported.

(3) For additional requirements for hoisting, rigging and cranes, refer to JSSS 5 [*Hoisting and Rigging*].

(4) Any reference to "operator" in this Chapter and elsewhere in JSSS shall be deemed to include "driver" also.

(5) Mobile equipment including wheeled or tracked, self-propelled construction machinery such as:

(a) Surface excavation and spoil movement equipment for bulk excavation, grading and levelling, such as bulldozers, graders and tractor excavators;

(b) Excavators such as backhoes, face shovels, power shovels;

(c) Loaders such as payloaders and face shovels;

(d) Dump trucks for removal or importation of spoil;

(e) Specialist foundation equipment such as pile driving and boring equipment;

(f) Compaction and surface treatment equipment such as smooth or sheepsfoot rollers, pneumatic and vibration rollers, asphalt finishers;

(g) Mobile cranes;

(h) Piling equipment;

(i) Concreting equipment such as ready-mixed concrete trucks and pump trucks;

(j) Demolition equipment such as breakers, concrete crushers and demolition grippers;

(k) Transportation Equipment, such as cars and buses for Contractor's Personnel and trucks and trailers for transporting Goods to, around and from the Site; and

(l) Workboat for diving works.

(6) Static equipment includes powered stationary equipment such as:

(a) Stone crushing plants and screening equipment;

(b) Concrete and asphalt concrete batching plants;

(c) Tower cranes, derrick cranes;

(d) Elevators;

(e) Material conveyors;

(f) Air compressors;

(g) Engine Generators, submersible pumps and engine pumps; and

(h) Reinforcement, cutting and bending machines.

(7) Small equipment and tools such as:

(a) Hand steered vibrating rollers;

(b) Plate compactors and vibratory rammers;

(c) Portable conveyors; (JC169)

JC169: revised.

(d) Pipe bending machines;

(e) Drills, hammers, breakers, compactors and compressors;

(f) Wood processing equipment;

(g) Independent concrete mixers;

(h) Air extract or blowing equipment for improving the working area environment;

(i) Jack hammers, drills;

(j) Chain saws;

(k) Hand operated equipment such as jacks, winches, lever hoists; and

(l) Hand tools such as wrenches, chisels, hand saw, picks, hammers.

4.1.2 Compliance Standards

(1) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], the Contractor shall comply with the requirements of this Chapter, read jointly with and including the further technical requirements of the Provision and Use of Work Equipment Regulations 1998 (PUWER), HSE Guidance in UK.

(2) In accordance with these regulations, together with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the Contractor shall ensure that all Contractor's Equipment provided for use upon the Works is:

(a) Suitable and fit for the purpose for which it is intended;

(b) Safe for use, maintained in a safe condition and inspected to ensure it is correctly installed and used and does not subsequently deteriorate;

(c) Used only by people who have received adequate information, instruction and training;

(d) Accompanied by suitable health and safety measures, such as protective devices and controls. These shall include emergency stop devices, adequate means of isolation from sources of energy, clearly visible markings and warning devices; and

(e) Used for the designed and intended purpose.

4.1.3 Manufacturer's Documentation

The Contractor shall obtain a copy of the following official Manufacturer's documentation for all units of Contractor's Equipment:

(1) Safety instructions and recommendations.

(2) Operation, maintenance and repair manual.

The Contractor shall inform all relevant Contractor's Personnel of the content of the same, provide further safety training as necessary and ensure full compliance by all relevant Contractor's Personnel with such instructions and recommendations to assist in enforcing the safe use of Contractor's Equipment. (JC170)

JC170: added.

4.1.4 Instruction for Contractor's Personnel

Further to the requirements of JSSS 1.7 [*Contractor's Safety Plans*], JSSS 1.9 [*Contractor's Method Statements*] and JSSS 1.15 [*Contractor's Safety Management Activities*], the Contractor shall include details of the following in the Method Statement and Safety Plan for the ~~w~~ Works (JC171) involving the use of Contractor's Equipment and shall fully inform all relevant Contractor's Personnel associated therewith of all requirements before the commencement of any such operations, ~~including~~ such as: (JC172)

JC171: 混在しているので一部修正した箇所があります。

Works and work are mixed in their use, so revision is made at some places.

JC172: revised.

NK: original seems correct.

(1) Scope of work, locations and areas, work methods, dimensions, levels and quantities to be achieved.

(2) Types, capacities and numbers of units.

(3) Workplaces, area limits and operational routes, restricted areas, locations of caution signs and fences.

(4) Preservation of safe access, walkways and footpaths around the working areas and transportation areas.

(5) Identities and roles of and location(s) for Spotters and the communication and signalling requirements, including equipment to be used.

(6) ~~Environmental impact including required~~ Working conditions and required mitigation measures for workers and any other persons against vibration, noise, dust and the like.

(7) Safety measures ~~for the environmental conditions~~ in the working area, any nearby areas for storage of Dangerous Goods or Hazardous Substances, Hazardous Areas, Operational Areas or areas where Dangerous Work is taking place.

(8) Potential danger to any persons who may be affected by the use of Contractor's Equipment and the required measures to avoid any accident or injury.

(9) Any potential hazards in the use of Contractor's Equipment including those which may create a risk of falling or overturning.

(10) Restrictions to the movement and operation of Contractor's Equipment such as existing structures, foundations, surfaces, underground or overhead services and Dangerous Goods storage.

(11) Measures to be taken in case of breakdown, defect or fault in Contractor's Equipment including location of areas for inspection and maintenance.

(12) Name of the authorised operator for each unit of Contractor's Equipment when authorised operator is necessary to be assigned.

(13) ~~The n~~ Name and contact of the HSO to inform when there are any requirements for inspection, maintenance and repair of Contractor's Equipment. (JC173)

JC173: deleted, added and modified.

4.1.5 Safety Training

(1) The Contractor shall provide the relevant Contractor's Personnel with health and safety training in accordance with JSSS 1.19 [*Safety Training Generally*] taking account of the characteristics of the particular types of Contractor's Equipment and including:

(a) Functions, performance, operation methods, inspection items, inspection method of safety and emergency alarm devices;

(b) ~~Work~~ Operation procedure, signal and communication method at starting time of the operation, and daily inspection;

(c) Lockout and tagout procedures for shutting down operation, turning off the power, locking the starter and necessary measures for the time of cleaning and inspection of the Contractor's Equipment;

(d) Stop of the operation of the Contractor's Equipment when an abnormality occurs and report to the person in charge;

(e) Prohibition of removal or isolation of safety devices; and

(f) Risks during operation of the Contractor's Equipment.

(2) Particular safety training for transportation equipment operators shall be for the purpose of preventing of traffic accidents on and off the Site and shall include:

(a) Driving rules in general;

(b) Compliance with speed limits, signs, alcohol use, drugs and all other requirements the Laws of the Country;

(c) Driving methods to avoid contact and collision with other persons, cycles, motorcycles and other vehicles;

(d) Driving methods to properly overtake other vehicles and to be undertaken by others;

(e) Driving methods when encountering holes, bumps or obstacles on the road;

(f) Required inspection and maintenance before starting operation; and

(g) Proper use of vehicles including behaviour and control of passengers, prevention of overcrowding, overloading and unauthorised passengers. (JC174)

JC174: deleted and added.

4.1.6 Requirements for Operators

Further to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*], the Contractor shall ensure that operators are appropriately qualified, skilled and experienced in operation of the Contractor's Equipment to which they are assigned and duly certified as such by the HSO.

(1) Operators shall safely and competently operate the Contractor's Equipment.

(2) Operators shall be fully aware of the following:

(a) Work procedures, hazards and operation methods;

(b) The need to stop the operation when any defect or abnormality is detected;

(c) The identity of and location(s) for Spotters and the communication and signalling requirements including equipment to be used; and

(d) The procedures in case of emergency.

(3) Operators shall:

(a) Keep all safety devices including emergency-alarm and stop-devices activated; (JC175)

JC175: added.
NK: It seems not necessary to add "-".

(b) Keep their assigned unit clean and carry out regular inspections prescribed by the Contractor before start of operation; and

(c) ~~Ensure that~~ Inform the Contractor's maintenance personnel ~~are made aware~~ of any

apparent defect or maintenance requirements. ~~and that such personnel have performed any required repair or maintenance before the start of operation.~~ (JC176)

JC176: deleted and added.

4.1.7 Signalling

(1) Signalling between operators and any associated workers shall only be carried out by designated personnel.

(2) Spotters shall be located in a safe place and where they can clearly see and be seen by the operator.

(3) When it is not possible for Spotters to give direct visible and audible signals to the operator, other systems including hand-held radios or videophone must be provided and used.

4.2 INSPECTION, MAINTENANCE AND REPAIR

4.2.1 Requirements Generally

(1) Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the HSO shall ensure that all Contractor's Equipment is inspected, fully maintained and operational when it is mobilised to the Site. Thereafter all Contractor's Equipment shall be inspected, maintained and repaired before the commencement of the first and of all subsequent days of operation.

(2) Inspections shall include all items necessary to ensure the safe performance of the Contractor's Equipment including the following examples and any further requirements due to the characteristics, capability and condition of the Contractor's Equipment and in compliance with the manufacturer's official operation, maintenance and repair manual.

(3) When mobilising Contractor's Equipment to the Site and before commencement of operation, the Contractor shall:

(a) Inspect all units of Contractor's Equipment to ensure that:

(i) all components are installed and functioning; and

(ii) adequate covers and safety guards (to prevent contact with moving parts) are provided and securely fixed.

(b) Ensure as a minimum that the daily and periodical check items have already been inspected and recorded;

(c) Ensure that all inspection and maintenance records are available for inspection by the Engineer if and when required in compliance with JSSS; and

(d) If any inspection and maintenance records are incomplete or not available, the Contractor shall carry out inspections and maintenance to ensure that a full and acceptable record is available for all units of Contractor's Equipment.

In relation with the above, it should be noted that Contractor's Equipment shall be in a working and safe condition and fully compliant with ~~the Contract~~ JSSS when it is mobilised to the Site. The Engineer may refuse to accept delivery to the Site any Contractor's Equipment which does not meet the requirements stipulated in t~~the Contract~~ JSSS. (JC177)

JC177: revised.

(4) The Contractor shall undertake the following daily inspection items, (or at intervals required by the manufacturer's official operation, maintenance and repair manual), carry out any necessary maintenance and repair, and when necessary obtain re-certification of the HSO before any further operation of the Contractor's Equipment is permitted:

(a) Operating condition of engine, gearbox(s), drive shafts, pulleys and main components, emergency stop and safety devices, any defects or abnormalities in covers, doors and enclosures;

(b) Abnormal sounds, vibrations or smell;

(c) Leaks, levels and condition of lubricants, coolant, hydraulic fluid levels, and the like;

(d) Lights and indicators;

(e) Brakes, clutches, steering and operating devices and working devices;

(f) Cables, slings, ropes and chains;

(g) Protective covers are adequately provided over all rotating or moving parts;

(h) Attachments and tools such as buckets, grabs and the like;

(i) Cleanliness of each unit or item of Contractor's Equipment;

(j) Cleanliness of each working area and removal of obstructions;

(k) Availability of emergency kits such as warning flares and triangles, fire extinguisher, first aid kit and the like, as required by the Laws of the Country with the testing and expiration date clearly indicated; and

(l) Any additional inspection items stipulated in the manufacturer's official operation, maintenance and repair manual.

(5) The Contractor shall undertake the following periodic inspection items, (at intervals required by the manufacturer's official operation, maintenance and repair manual), carry out any necessary maintenance and repair, and when necessary obtain re-certification of the HSO before any further operation of the Contractor's Equipment is permitted:

(a) Engine compression pressure, valve clearance and other relevant parts of prime energy unit;

(b) Gearbox, clutch, transmission, propeller shaft, differential and other parts of power transmission devices;

(c) Drive wheels, idling wheels, vertical trunk rollers, belts, tires, wheel bearings and other parts of traveling devices;

(d) Springs, shock absorbers and other parts of suspension devices;

(e) Left and right rotation angle of steering wheel, knuckle, rod, arm and other parts of control devices;

(f) Brake capacity, brake drum, brake shoe and other parts of braking systems;

(g) Blades, booms, link mechanisms, buckets, wire ropes and other parts of work equipment;

(h) Hydraulic pump, hydraulic motor, cylinder, safety valve and other parts of hydraulic equipment;

(i) Voltage, amperage and relevant performance and components of electrical systems;

(j) Body, operating devices, head guards, back stoppers, access doors, protective covers, ladders and steps, locking devices, warning alarm devices, direction indicators, tyre air pressures and lightning devices; and

(k) Any additional inspection items stipulated in the manufacturer's official operation, maintenance and repair manual.

(6) Operation of any unit of Contractor's Equipment shall not be allowed to commence until the HSO has certified that it is safe to do so.

(7) The Contractor shall prepare standard checklists for all inspections and the HSO shall ensure that these are complied with, completed and signed and kept as a record in accordance with JSSS 1.32 [*Health and Safety Records*].

4.2.2 Defects and Repair During Operation

(1) If an operator notices any defect or abnormality in the Contractor's Equipment during operation (such as abnormal noise, temperature, smell, etc.) the operator shall stop the operation immediately.

(2) Necessary repair shall be provided by qualified mechanics, electricians or engineers.

(3) The HSO shall ensure that no further operation shall resume unless the above has been complied with and the Contractor's Equipment has been re-inspected by him and certified in accordance with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPP*].

4.3 SAFETY REQUIREMENTS

4.3.1 General Safety Measures

In addition to other safety and health requirements of JSSS, the Contractor shall:

(1) Ensure that there is sufficient lighting to perform all work safely and provide artificial lighting where necessary.

(2) Ensure that Contractor's Equipment is equipped with suitable protective safety devices such as covers, screens, guards, contact prevention devices, auto-stop devices, enclosures, barriers and the like as necessary to prevent injury to personnel from equipment or parts of equipment, where:

(a) There may be any risk of persons being hit by, caught or injured or entangled in any ropes, cables, sheaves, moving or rotating parts; and

(b) There may be any risk of persons being hit by flying debris, offcuts, or the like produced by the equipment.

(3) Ensure that Contractor's Equipment is equipped with suitable ladders and steps for access to the operating cab and also to all other levels and components to permit inspection, assembly, maintenance and repair of the equipment. When any Contractor's Personnel need to work at a height of 2 m or more, the Contractor shall take suitable measures in accordance with JSSS 2.5 [*Fall Prevention*], including the provision and use by ~~all~~ such Contractor's Personnel of guide ropes and PFAS. (JC178)

JC178: modified.

(4) Prohibit personnel other than operators, workers and other authorised personnel from entering the place where Contractor's Equipment is in use for the Works.

(5) Ensure that each unit of Contractor's Equipment is provided with appropriate numbers and types of fire extinguishing equipment (where such equipment is necessary) and ensure that all operators and other Contractor's Personnel are trained in the use of such equipment and in fire safety procedures.

(6) Ensure that each working area where Contractor's Equipment is in use, is provided with appropriate numbers and types of first-aid equipment and such other facilities that are necessary to ensure safety and treat accidents and ensure that all operators and other Contractor's Personnel are trained in the use of such equipment and first-aid procedures.

(7) Post a label clearly showing the name of the operator on each unit of Contractor's Equipment together with the name and contact number of the HSO or a person in charge

who shall be contacted in the event of breakdown or fault.

(8) Ensure that only the authorised operating, inspection and maintenance personnel access the mechanical, electrical and other components and systems of the Contractor's Equipment and prohibit all other persons from such access.

(9) Ensure that any inspection and maintenance covers, safety guards to prevent contact with moving parts and the like are not disabled, tampered with or removed except for repair, maintenance or any other justifiable reason.

(10) Ensure that installation, assembly, testing commissioning, operation and dismantling of all Contractor's Equipment is carried out under the direction of an Operation Leader, appropriately qualified, skilled and experienced in such activities for the particular type and capacity of equipment and in accordance with the manufacturer's operation, maintenance and repair manual.

4.3.2 Safety Measures During Cleaning, Inspection and Maintenance

The Contractor shall take the following measures for safety of Contractor's Personnel during cleaning, inspection and maintenance. Until such measures are taken, the Contractor shall prohibit any cleaning, inspection or maintenance personnel or other workers from entering the areas. (JC179)

(1) ~~Perform inspection and maintenance work~~ Put Contractor's Equipment, wherever possible on a level surface. ~~Where unavoidable~~ Where such is not possible, ensure that wheels are securely chocked to prevent any movement of equipment.

(2) Provide safety blocks or supports under cargo bed of vehicles to prevent them descending unexpectedly ~~during inspection and maintenance~~.

(3) Lower attachments (buckets and blades etc.) to the ground during any inspection and maintenance. Where unavoidable ensure that attachments are securely supported to prevent any fall or downward movement.

(4) Stop and isolate the functions completely, establish and implement lockout and tagout procedures to prevent accidents during inspection and maintenance. The lockout and tagout system shall fully isolate the starting system.

(5) Post warning signs to prohibit start-up or use of any Contractor's Equipment ~~during inspection and maintenance~~.

(6) Assign a Spotter.

(7) Ensure that only authorised personnel have access to the cleaning, inspection and maintenance area. (JC179)

JC179: deleted and added.

4.3.3 Safety Measures During Operation

(1) Unless otherwise specifically permitted by the HSO, all work involving the use of Contractor's Equipment shall be designated as Dangerous Work and the Contractor shall enclose the working area with temporary fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry - Dangerous Work*].

(2) The Contractor shall also ensure that:

(a) All operators are able to clearly see and communicate effectively with Spotters and other relevant persons;

(b) No Contractor's Equipment is operating beyond the capacity or operational limits officially prescribed by the equipment manufacturer;

(c) The surfaces upon which the Contractor's Equipment is working, and any adjacent

surfaces and areas over which access is required, are sound, safe and suitable to support the equipment and the Contractor shall provide any temporary foundations, hardstanding or other surfaces, sleepers or steel plates as are necessary to ensure safety and stability of the equipment at all times;

(d) Spotters are always be provided to enable precise movement and positioning of Contractor's Equipment, particularly when reversing, loading and unloading, in dangerous areas or when the operator's view is not clear and at intersections with public roads;

(e) Where there is any risk of turnover, slippage, collapse or fall, Contractor's Equipment is equipped with seatbelts or safety harnesses and that such seatbelts and harnesses are used;

(f) Where there is any risk of turnover, slippage, collapse or fall, Contractor's Equipment is equipped with a "Roll-Over Protective Structure" (ROPS);

(g) Where there is any risk of injury to operators due to Falling Objects Contractor's Equipment is equipped with a "Falling Object Protective Structure" (FOPS); (JC180)

(h) Operators are aware that they shall pay careful and constant attention to the position of any workers near to the operating area and particularly when mobile equipment is reversing;

(i) Operators of excavating equipment are aware that excavator buckets shall never pass over the operator's seat of another Contractor's Equipment; (JC180)

(j) Workers shall not enter under a bucket which is loading material and shall keep away from dump trucks when loading or unloading materials; and

(k) No person shall ride on trucks, trailers or cargo bed other than cabin of vehicles unless permitted by the Law of the Country.

JC180: revised and added. ("another" is necessary to make the stipulation meaning.)

4.3.4 Safety Measures When Mobile Equipment Is Not in Use

(1) When mobile equipment is not in use, the Contractor shall ensure that operators:

(a) Park on surfaces which are level, sound, safe and suitable to support the equipment;

(b) Securely chock all wheels to prevent any movement;

(c) Lower attachments (buckets and blades etc.) to the ground;

(d) Stop and isolate the functions completely, fully engage brakes and lock the brake pedal; and

(e) Lock the equipment and store the starter key in the designated place.

(2) The Contractor shall prohibit all persons other than authorised personnel from entering the area where Contractor's Equipment is parked.

4.3.5 Safety Measures During Connecting and Removing of Attachments

The Contractor shall take the following measures when connecting and removing attachments (buckets, blades etc.) to Contractor's Equipment:

(1) Prevent any accident due to movement or fall of attachments by taking safety measures for example, connecting and removing attachments after locating them on stable and sound frames or on the ground.

(2) Prevent accidental movement or operation causing persons to be trapped attachments by taking safety measures for example, parking of the Contractor's Equipment such that it

cannot move (as mentioned in JSSS 4.3.4 (1) (a), (b) and (d)) and stop the engine.

4.3.6 Safety Measures During Loading and Transporting of Contractor's Equipment

The Contractor shall: (JC181)

JC181: added.

(1) Select and use trailers with associated ramps, other loading equipment and restraints which are suitable for the particular type, size and weight of the Contractor's Equipment and fit for the purpose for which they are intended.

(2) Select location and areas for loading and unloading which have sufficient space and surfaces which are level, sound, safe and suitable to support all of the equipment.

(3) Securely chock all wheels of trailers to prevent any movement.

(4) Stop and isolate the functions of trailers and load and fully engage brakes.

(5) Ensure trailers are equipped with tie down devices to allow secure fixing of load.

(6) Ensure that the weight and height of the loaded Contractor's Equipment does do not exceed actually required or legal limits.

(7) Ensure that all lights, brakes, steering and safety devices are working properly.

(8) Ensure that suitable, clear and legally compliant signage is attached to the trailer visibly indicating the maximum safe loading capacity, height of load, width, speed limits and any other restrictions or required information.

(9) Ensure that trailers are loaded evenly.

(10) Ensure that Contractor's Equipment loaded onto trailers is braked, wedged, securely locked in position and tied to the trailer with adequately sized chains, slings and other fixings and tensioned to prevent any movement during transit.

(11) Place any attachments on trailers and securely tie down.

(12) Inspect the tie-down tensioning, before and at intervals during transportation of Contractor's Equipment to ensure that there is no slackening.

(13) Inspect chains, slings and other fixings for securing transported Contractor's Equipment and if any abnormality is found, replace immediately.

4.3.7 Safety Measures During Loading and Transporting of Goods

The Contractor shall: (JC181)

JC181: added.

(1) JC181: added.When transporting heavy or long Goods on public roads, select roads on which the transportation does not pose danger to other traffic, third parties, structures adjacent to the transportation route, obtain all necessary permission from the relevant authorities including police and road authority before commencement of transportation and comply with all requirements.

(2) When transporting heavy or long material Goods within the Site, select suitable routes where the transportation does not pose danger to existing permanent or temporary buildings or structures or other works and obtain the consent of the HSO before commencement of the transportation and comply with all requirements.

(3) Ensure that Goods are loaded evenly.

(4) Secure all loads with adequate and tensioned slings and cover with protective sheets, to avoid any fall or collapse of the conveyed articles and prevent any risk to workers and third parties.

(5) Inspect slings for securing transported materials and if any abnormality is found, replace

immediately.

4.3.8 ~~Site Access Roads~~ Temporary Roads in the Site (JC182)

The Contractor shall: (JC181)

JC181: added.

(1) Take measures for ensuring that ~~Site access roads~~ Temporary Roads in the Site are of suitable construction, of sufficient width, free from potholes, uneven settlement and collapse. (JC182)

JC182: revised.

(2) Provide signs indicating height and weight restrictions, bends, speed limits, intersections, dangerous places and the like (road shoulders, cliff edges.).

(3) Separate roads for vehicles and walkways for workers and provide passing area for vehicles at places where the road is narrow.

(4) In large construction sites, provide exclusive transport roads which are one-way if possible and provide passing areas on narrow roads.

(5) Provide sufficient lighting facilities at necessary places along roads when work operating in night.

4.3.9 Additional Requirements for Static Equipment

(1) The Contractor shall design and construct suitable foundations and support structures for static equipment with paved surfaces, screens, fencing and associated facilities for storage of material and product and for offices, access and the like all of which shall be suitable and fit for the purpose for which they are intended. Unless otherwise stated in the Contract, all such foundations, support structures, paved surfaces, fencing, screens and associated facilities shall be demolished and removed and disposed of safely and in an environmentally acceptable manner by the Contractor ~~on~~ until completion and taking over of the Works. All areas shall be backfilled, restored to a safe and suitable condition, cleaned and landscaped~~, all to the approval of the Engineer~~. (JC183)

(2) Unless otherwise stated in the Contract, all remaining aggregate, rock, cement, bitumen and the like used by or processed with the static equipment shall be removed and disposed of safely and in an environmentally acceptable manner by the Contractor on completion ~~and taking over of the Works~~ of use of the static equipment. All areas shall be backfilled, restored to a safe and suitable condition, cleaned and landscaped~~, all to the approval of the Engineer~~. (JC183)

JC183: deleted and added.

4.3.10 Additional Requirements for Personnel and Goods Elevators and Material Conveyors

(1) General

(a) The requirements for conveyors stipulated in this Clause apply to ~~portable and~~ material conveyors;

(b) The Contractor shall undertake the daily and periodical inspection in addition to the items stipulated in JSSS 4.2 [*Inspection, Maintenance And Repair*], ~~JSSS 4.2.1 [*Requirements Generally*], (4) and (5)~~ (or at intervals required by the manufacturer's official operation, maintenance and repair manual), carry out any necessary maintenance and repair and when necessary obtain re-certification of the HSO before any further operation of the Contractor's Equipment is permitted; and

(c) The Contractor shall post the maximum load capacity and any restrictions on the use. (JC184)

JC184: added, deleted and modified. (The both 4.2 and 4.2.1 are not necessary to be mentioned.)

(2) Personnel and Goods Elevators

(a) Additional daily inspection items shall include checking for defects or operational faults with the following:

(i) Elevator enclosures, doors, guide-rails and runners;

(ii) Emergency stop and alarm systems;

(iii) Power, lighting and control systems;

(iv) Interphone systems;

(v) Brakes, clutches; and

(vi) Sheaves and pulleys.

(b) Additional periodical inspection items shall include checking for defects or operational faults with the following:

(i) Daily inspection items;

(ii) Wire ropes;

(iii) Winch and its foundation; and

(iv) Supporting structures, guy ropes, fixings and anchors.

(3) Material Conveyors (JC185)

JC185: added.

(a) Additional safety measures: (typo)

(i) Conveyor systems shall be equipped with an audible warning signal to be sounded immediately before starting up the conveyor;

(ii) Means for stopping the motor or engine shall be provided at the motor or engine location;

(iii) Emergency stop switches shall be provided and be arranged so that the conveyor cannot be started again until the actuating stop switch has been reset to running or "on" position;

(iv) Where a conveyor passes over work areas, roads and walkways, suitable guards shall be provided to prevent fall of the materials being conveyed; and

(v) Riding of workers on the moving belts shall be prohibited.

(b) Additional daily inspection items shall include checking for defects or operational faults with the following:

(i) Overrun and reverse run prevention devices;

(ii) Emergency stop switches; and

(iii) Guards.

(c) Additional periodical inspection items, shall include for checking for defects or operational faults with daily inspection items.

4.3.11 Additional Requirements for Small Equipment and Tools

(1) Accessories and attachments shall be the standard types obtained from or recommended by the manufacturer of the equipment to which they are connected.

(2) Any repairs shall be carried out by competent persons approved by the HSO ~~and using the manufacturer's genuine or recommended spare parts.~~ (JC186)

JC186: deleted.

(3) All small equipment and tools shall be tested by the HSO as safe for use after any repair or replacement of parts, before such equipment is put back into use.

4.3.12 Additional Requirements for Electric Powered Equipment

(1) Electric powered equipment specified in this Clause shall include portable electric powered mobile equipment or tools and shall form a part of the small equipment and tools listed in JSSS 4.1.1 (7).

(2) The Contractor shall undertake the following additional daily inspection items, (or at intervals required by the manufacturer's official operation, maintenance and repair manual), carry out any necessary maintenance and repair and when necessary obtain re-certification of the HSO before any further operation of the Contractor's Equipment is permitted:

(a) Defects or operational faults with grounding such as disconnection of grounding wire and insecure fixing of grounding electrodes;

(b) Damage to insulation and protective coverings of all wires and cables including flexible cables; and

(c) Damage to plugs, sockets, transformers and all wiring fittings and appliances.

(3) The Contractor shall comply with the following additional safety requirements:

(a) Use waterproof switches and socket outlets with covers, securely fixed and located in accessible and dry places;

(b) Label and paint electrical power and switch boxes with warning signs and coloured hazard markings;

(c) Use rubber cabtyre cables for all electrical power equipment;

(d) Wherever possible provide an ELCB (Earth Leakage Circuit Breaker) or RCD (~~Current Sensing~~ Residual Current Device) in the electrical supply to ~~each item of~~ electrical equipment; (JC186)

JC186: deleted and revised.
NK: NK is under review ELCB and RCD and will revise this (d). To MD, please wait for NK revision.

(e) If for any reason, an ELCB or RCD cannot be provided, ensure that the metal exterior of the electrical power supply, metal outer casing of electric motors and the electrical equipment are all grounded;

(f) Avoid hanging electric cables and wires directly on nails, reinforcement or Scaffolding and the like to prevent damage to the insulation and protective covering;

(g) Turn off the power before repairing, moving or maintaining electric power equipment;

(h) Replace fuses with correct type and rating, prohibit replacing fuses with a higher rating or with iron or copper wire;

(i) Ensure that fuses are replaced by an authorised person;

(j) Prevent any use of electric power equipment from use in the rain, or when the user is wet, standing in water or is not wearing rubber soled insulated footwear or when the electric power equipment is wet;

(k) When any operational fault is identified immediately turn off the power, unplug and stop using the equipment and advise (or hand to) the HSO;

(l) Ensure that workers using electric power equipment wear appropriate PPE suitable

for the electric power equipment in use such as working clothes, protective helmets, safety shoes, eye and face protection, ear protection; and

(m) When electric shock accident occurs, unplug and stop using the equipment and advise (or hand to) the HSO and take measures in accordance with JSSS ~~1.24 [*Accident Response Plan*]~~ 1.25 [*Measures at the Time Accidents Occur*]. (JC186)

JC186: changed.

4.3.13 Additional Safety Measures during Adverse Weather

Further to the requirements of JSSS 2.7 [*Adverse Weather Requirements*], the Contractor shall ensure that Contractor's Equipment is parked in a stable and secure state by taking all necessary measures including:

(1) Dropping the jib, boom, arm and attachments to ground level and securing where necessary with adequate anchors and chains.

(2) If heavy rain and flooding can be anticipated, moving Contractor's Equipment to higher ground or to places ~~where there is no~~ risk of instability is limited. (JC187)

(3) Removing snow or ice.

JC187: modified.

4.4 ROPES, SLINGS AND CHAINS

4.4.1 Requirements Generally

(1) The Contractor shall ensure that untested, uncertified, broken, damaged, deformed or defective ropes, chains or slings shall not be used.

(2) The safety factor for wire ropes, slings and chains shall be as recommended by the manufacturer of each type.

(3) Requirements for Ropes, slings and chains shall be as specified in JSSS 5.4 [*Rigging Equipment*].

4.5 ALTERNATIVE USE OF CONTRACTOR'S EQUIPMENT

4.5.1 Requirements Generally

The Contractor shall not use Contractor's Equipment for any other purpose than the purpose for which it is designed and other than the purpose recommended by the manufacturer.

Use of Contractor's Equipment for any other purpose than the originally intended purpose are allowed only if it is not prohibited by either of the Law the Country and the manufacturer's official operation, maintenance and repair manual and subject to HSO's approval after reviewing all the safety aspects.

In particular, when equipment for excavation is to be used for lifting, the HSO shall , in addition to other requirements provided in JSSS, confirm: (JC188)

JC188: 目的外使用のことをあまり長々と書きたくない。JSSS の他のところで読めるような部分は削除してよい。

JC does not want to specify about alternative use of the Equipment too long. The provisions which can be read in other parts of JSSS can be deleted.

(1) Rigging Equipment such as hook is attached on an appropriate part of the excavation equipment (e.g. arm or bucket).

(2) Arms, bucket, Rigging Equipment have enough strength to lift the load.

(3) ~~There is no risk that the~~ The lifting devices such as hook and shackles ~~will be detached from~~ are firmly attached to arm or bucket of the equipment.

(4) The lifting capacity for alternative use is confirmed by loading tests at the Site.

(5) ~~Ensure that operators understand the equipment capability, are properly trained in the alternative use, are fully aware of and follow the manufacturer's written instructions and load charts.~~

(6) Ensure that operators have accurately determined the total weight of the load, taking account of the weight of any attachments, the reach and angle and configuration of the equipment and have informed the HSO of this and obtained his permission before commencing the operation.

(7) ~~Check the working area and improve the ground surface as necessary to ensure the stability of the equipment.~~

(8) ~~Ensure that the equipment is stable, if provided lower stabilisers, if the equipment is equipped with a blade, lower the blade to the ground for added stability and ensure that necessary counterweights are in place.~~

(9) ~~Check the rigging to ensure it is appropriate to the use and rated to handle the load. Inspect it before each use for any signs of damage or wear, and make sure it is properly secured to the machine and load.~~

(10) ~~Ensure that the area is clear of any unnecessary personnel, Spotters should be the only individuals in the immediate area, and should be stationed clear of the lift area yet visible to the operator throughout the operation.~~

(11) ~~Lift the load slowly, keep the lifting point directly over the centre of the load, keep the load as close to the machine and the ground as possible and position the equipment to hoist and lower end on, not sideways.~~

(12) ~~If there are any signs of instability or loss of control of the machine or load, discontinue the lift and lower the load to the ground.~~ (JC189)

JC189: deleted and added as commented in JC188.

4.6 HIRED/LEASED CONTRACTOR'S EQUIPMENT

4.6.1 Requirements Generally

(1) Contractor's Equipment from hire or lease companies shall comply with all of the requirements of ~~the Contract and~~ (JC190) JSSS as if it were the Contractor's own property, in particular the Contractor shall ensure compliance with the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

(2) The Contractor shall ensure that the hire/lease companies have performed all necessary inspection, maintenance and repair works before the Contractor's Equipment is mobilised to the Site and that the following is provided with the equipment to the Contractor upon mobilisation and is available for the inspection of the Engineer:

(a) Inspection and maintenance records;

(b) Operation, repair and maintenance manuals; and

(c) Spare and replacement parts, tools, maintenance equipment, lubricants, filters, hydraulic fluids and the like.

(3) The Contractor shall double-check to ensure that the inspection and maintenance has been carried out and if the Contractor has any doubt over the adequacy of such inspection or maintenance or if complete records are not made available, the Contractor shall not allow this Contractor's Equipment to be used upon the Works. The Contractor shall inspect and carry out full maintenance and repair on such equipment in compliance with the requirements of this Chapter before it is certified for use by the HSO and used upon the Works.

(4) Operators from hire/lease companies are by definition Contractor's Personnel and they shall be treated as if they are employed by the Contractor, in terms of compliance with

~~the Contract and~~ JSSS. (JC190)

JC190: deleted.

(5) Operators shall be tested and certified by the HSO, shall receive safety training and shall perform all inspection, maintenance and other requirements fully in compliance with JSSS, in the same way as the Contractor's own employees.

4.7 TEMPORARY FUELLING FACILITIES

4.7.1 Requirements Generally

(1) ~~Unless otherwise specified in the Particular Safety Specification,~~ When the Contractor ~~shall design and construct~~ uses temporary fuel storage and dispensing facilities at the Site for the use of Contractor's Equipment, the Contractor shall design and construct them so that they ~~. These facilities~~ shall be substantial and secure and capable of storing and dispensing fuel in a safe and environmentally acceptable manner all to the approval of the Engineer. (JC191)

JC191: modified.

(2) The facility shall include storage tanks, suitable foundations, support or containment structures, protective bund walls as necessary, paved surfaces, screens, fencing and associated facilities for storage of separate fuels and lubricants and for offices, access and the like all of which shall be suitable and fit for the purpose for which they are intended.

(3) Unless otherwise specified in the Contract, all such tanks, foundations, support and containment structures, paved surfaces, fencing, screens and associated facilities shall be demolished and removed and disposed of safely and in an environmentally acceptable manner by the Contractor ~~on~~ until (JC192) completion and taking over of the Works. All areas shall be backfilled, restored to a safe and suitable condition, cleaned and landscaped, all to the approval of the Engineer.

JC192: revised.

(4) The Contractor must ensure that the temporary fuel storage and dispensing facility is operated and occupied at all time only by authorised personnel and that all unauthorised personnel are prohibited from entering such areas at all times. The Contractor shall be particularly careful and provide measures to prevent any unauthorised access, tampering, damage and theft at any time.

(5) All storage tanks shall be bunded either as jacketed tanks or by providing bunded enclosures, such that in the event of a catastrophic failure, the tank contents will be safely contained and shall not be allowed to run freely or enter the surface or ground water systems.

(6) The Contractor is reminded of the requirements of JSSS 2.8 [*Fire Prevention*] and will be required to provide a comprehensive and a high standard of fire protection in fuel storage areas.

(4) Up to here, JICA comments and NK comments are inserted by NK on 2020/7/30.

CHAPTER 5: HOISTING AND RIGGING

5.1 GENERAL REQUIREMENTS

5.1.1 Scope

(1) This Chapter specifies the safety requirements for Hoisting and Rigging Works which shall include:

(a) Hoisting Operations;

(b) Hoisting Equipment; and

(c) Rigging Equipment.

and hereinafter collectively referred to as "Hoisting and Rigging".

(2) General requirements for Contractor's Equipment for Hoisting and Rigging (including cranes) are included in JSSS Chapter 4 [*Contractor's Equipment*].

Additional particular requirements are contained in this Chapter.

5.1.2 Definitions

Definitions of terms for the purpose of this Chapter are as follows:

(1) "**Hoisting Equipment**" means Contractor's Equipment such as cranes, hoists, chain-blocks, pulleys and the like which constitute the prime mover that, when used with Rigging Equipment, permits loads to be hoisted or lowered and positioned.

(2) "**Rigging Equipment**" means the ropes, webbing, chains and slings together with all associated accessories such as hooks, hoisting points, shackles, etc. that, when used with Hoisting Equipment, permits loads to be hoisted or lowered, and positioned.

(3) "**Rated Capacity**" means the maximum hoisting load for ~~each~~ certain types of Hoisting Equipment as officially ~~permitted~~ recommended by the manufacturer. This will vary according to configuration of Hoisting Equipment and conditions of use such as length and angle of boom and other factors as ~~permitted~~ officially recommended by the manufacturer. (JC193)

(4) "**Safe Working Load**" means the maximum safe working load for each type, size and capacity of Hoisting Equipment and Rigging Equipment as officially recommended by the manufacturer. (JC193)

JC193: Rated capacity は mobile Clane と tower Clane に限定され、その他のクレーンには safe working load が適用されるはずです。

JC understand that Rated Capacity is applied to mobile Crane and tower Crane, and safe working load is done to other cranes.

NK: I will review this comment later.

(5) "**Rigger**" means a competent person who is certified by the HSO as suitable for assignment to Hoisting and Rigging under this Chapter in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*].

5.1.3 Compliance Standards

(1) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Chapter or relevant to the subject of this Chapter and which are not fully covered by JSSS, the Contractor shall comply with the technical requirements of the following standards in OSHA PART 1926 - Safety and Health Regulations for Construction:

(a) Subpart H - Materials Handling, Storage, Use, and Disposal; Section 1926.251 Rigging equipment for material handling;

(b) Subpart R- Steel Erection; Hoisting and rigging;

(Whilst this standard is related to Steel Erection, JSSS requires these technical requirements to apply to Hoisting Operations and associated rigging requirements in construction works generally)

(c) Subpart CC - Cranes and Derricks in Construction; Section 1926.1413 Wire Rope - Inspection and Section 1926.1414 – Wire Rope - Selection and installation criteria.

5.2 HOISTING OPERATIONS

5.2.1 Instruction for Contractor's Personnel

Further to the requirements of JSSS 1.7 [*Contractor's Safety Plans*], JSSS 1.9 [*Contractor's Method Statements*] and JSSS 1.15 [*Contractor's Safety Management Activities*], the Contractor shall include details of the following in the Method Statement and Safety Plan for Hoisting Operations and shall fully inform all Contractor's Personnel associated with such Hoisting Operations of these requirements before the commencement of any such operations, including:

(1) Scope, Area and Risk of the Hoisting Operation

(a) The scope of the required Hoisting Operation, the Rated Capacity, Safe Working Load, nature of Goods to be hoisted, location, required methods and safety arrangements;

(b) The Hoisting Operation ~~area limits~~ Boundary; (JC194)

(c) Requirements on the ground conditions for installation, appropriate installation method taking account of all Hoisting Operation requirements, site and working conditions, location of obstacles, etc.;

(d) The working environment of the nearby areas to which particular attention should be paid (e.g. storage of Dangerous Goods or Hazardous Substances, Hazardous Areas, Operational Areas, or Overhead Services);

(e) The preservation of safe access for Contractor's Equipment and persons to, within and around the Hoisting Operations working area; and

(f) The potential danger of Hoisting Operations to any persons that are on the Site, and who may be affected by such operations.

(2) Hoisting Operation and Rigging Requirements

(a) The type of Hoisting Equipment to be used and its Rated Capacity/Safe Working Load; (JC194)

(b) The Safe Working Load and type(s) of Rigging Equipment to be used;

(c) Hazards associated with the Hoisting Operation;

(d) Role and responsibility of the operator and each Rigger;

~~(e) Establishing targets for the day;~~ (JC194)

(f) Weight of Goods being hoisted;

(g) The shapes and characteristics of Goods being hoisted;

(h) The presence of any obstructions or Overhead Services and consequent restrictions on the movement and operation of Hoisting Equipment; and

(i) Connecting and disconnecting techniques.

(j) The communication and signalling requirements (equipment to be used and standard signals); and

(k) The procedures in case of emergency. (JC194)

(3) Identification of Personnel

(a) The identity of operators, Riggers and any other workers associated with the Hoisting Operation;

(b) The name of the authorised operator for each unit of Hoisting Equipment;

(c) The identity of and location(s) for Spotters;

~~(d) The communication and signalling requirements (equipment to be used and standard signals); and~~

~~(e) The procedures in case of emergency.~~ (JC194)

5.2.2 Operators and Riggers Generally

(1) The Contractor shall place signs on each unit of Hoisting Equipment showing the name of each authorised operator and clearly prohibiting all unauthorised persons from using, handling, operating or sitting at the controls of that equipment unit.

(2) Further to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*], the Contractor shall ensure that operators and Riggers are appropriately qualified, skilled and experienced in operation of the Hoisting Equipment to which they are assigned and duly certified as such by the HSO.

(3) Operators and Riggers shall be fully aware of the following:

(a) Work procedures, possible risks and operation methods;

(b) The need to stop all work when any defect or abnormality is detected;

(c) Not to remove, interfere with or override any safety devices;

(d) The identity of and location(s) for Spotters and the communication and signalling requirements including equipment to be used and signals; and

(e) The procedures in case of emergency.

(4) In addition, operators shall:

(a) Safely and competently operate the Hoisting Equipment;

(b) Keep all safety devices including emergency alarm and stop devices activated;

(c) Keep their assigned unit clean and carry out regular inspections prescribed by the Contractor before start of operation; and

(d) ~~Ensure that~~ Inform the Contractor's maintenance personnel ~~are made aware~~ of any apparent defect or maintenance requirements ~~and that such personnel have performed any required repair or maintenance before the start of operation.~~ (JC194)

(5) The Contractor shall assign only Riggers for Hoisting Operations and shall prohibit other workers from any involvement.

(6) The names of all assigned Riggers shall be posted prominently in the working area of the Hoisting Operation.

JC194: deleted, modified and moved.

5.2.3 Safety Training

The Contractor shall provide health and safety training in accordance with JSSS 1.19 [*Safety Training Generally*]. taking account of the characteristics of the Hoisting Operations, Hoisting Equipment and Rigging Equipment.

5.2.4 Inspection of Hoisting Equipment and Rigging Equipment

(1) When the Hoisting Equipment is mobilised to the Site, the Contractor shall inspect the equipment complying with JSSS 4.2 [*Inspection, Maintenance and Repair*], to ensure that the equipment is free from defect and suitable for the planned Hoisting Operation.

(2) Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] and JSSS 4.2 [*Inspection, Maintenance and Repair*], the HSO shall ensure that all Hoisting Equipment and all Rigging Equipment is inspected and maintained when it is at the location of operation before the commencement of the first and of all subsequent Hoisting Operations.

Inspections shall include all items necessary to ensure the safe performance of the Hoisting Operations including the following examples and any further requirements due to the characteristics of the Hoisting Operation and the capability and condition of the Hoisting Equipment and Rigging Equipment including condition and performance of:

(a) Anti-two blocking devices (over-winding prevention devices) and over-load prevention devices;

(b) Other safety devices including brakes, clutches and controllers;

(c) Rails for trolley and runway;

(d) Hooks, sheaves, blocks, pulleys and the like;

(e) Cables, ropes and the like; and

(f) Rigging Equipment.

(3) Periodic inspection shall be made complying with JSSS 4.2 [*Inspection, Maintenance and Repair*] and include the following items:

(a) Condition of over-winding prevention devices, anti-two blocking devices (over-winding prevention devices), other safety devices, brakes, and clutches;

(b) Condition of wire ropes and hanging chains;

(c) Condition of the Hoisting Equipment;

(d) Condition of placement of winches; and

(e) Condition of electric wire, switchboard and controller.

(4) No Hoisting Equipment or Rigging Equipment shall be put into operation unless it has been inspected in accordance with the requirements of JSSS 4.2 [*Inspection, Maintenance and Repair*], and it is certified as safe to be used.

(5) The Contractor shall prepare standard checklists for the above regular and periodic inspections. The results of these inspections shall be recorded and kept in accordance with JSSS 1.32 [*Health and Safety Records*].

5.2.5 General Safety Measures for Hoisting Operations

The Contractor shall:

(1) Select Hoisting Equipment which has a Rated Capacity/Safe Working Load (JC195)and function compatible with the work conditions and requirements, including loads, surface conditions, access, working area, radius and angle of boom, etc.

(2) Clearly display the Rated Capacity/Safe Working Load of the Hoisting Equipment so that all operators and Riggers are fully aware at all times. (JC195)

JC195: added.
NK: Related with JC193, these additions will not be made.

(3) Select Rigging Equipment with Safe Working Load suitable for the Hoisting Operation.

(4) Select Rigging Equipment compatible with the purpose, work conditions and requirements.

(5) Ensure that operators and Riggers confirm that the load on the Rigging Equipment is less than the Safe Working Load.

(6) Activate all safety devices of Hoisting Equipment throughout the entire operation time(s) of any Hoisting Operations.

(7) Prohibition of entry

(a) Designate all Hoisting Operations as "Dangerous Work", enclose the entire working area which is subject to any risk by providing temporary fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry – Dangerous Work*]; and

(b) The Contractor shall take measures to keep any unauthorised personnel away from any area where there is any risk of injury arising from the Hoisting Operation, due to fall of hoisted Goods, tangling, snagging, rebound of broken ropes or cables, broken sheaves, droppage and the like.

(8) Signalling

(a) Signalling between operators, Riggers and any associated workers regarding the Hoisting and Rigging Operations, shall only be carried out by Riggers, (hereinafter referred to as signallers);

(b) Signallers shall be located in a safe place outside the immediate area where the Rigging and Hoisting Operations are taking place, but in a location where they can clearly see suspended loads and can also see the operator and also be seen by such personnel;

(c) When it is not possible for signallers to give direct visible signals to the operator, hand-held radios or other communication tool as approved by HSO must be provided and used; and

(d) In addition, Spotters shall be placed and used only to keep any unauthorised personnel away from the working area.

(9) During Hoisting Operations:

(a) Check if the hoisting points, hooks and the like are positioned above the centre of gravity of the load to be hoisted;

(b) At commencement of all Hoisting Operations, stop the hoist at 30 cm from hoisting level, to check stability and ensure that all is in order before proceeding;

(c) Ensure that there are no persons and objects within the turning area when the Hoisting Equipment turns;

(d) After hoisting loads up to the safe height, adjust the boom gently;

(e) Always pay attention to any movement of the boom and the condition of suspended loads; and

(f) When unloading or detaching loads, stop once before landing and check the condition of the landing place and the load and then continue to lower gently.

(10) Ensure that operators shall never leave their seat or leave the controls while Hoisting Operations are in progress. (JC196)

(11) Defects with Hoisting Equipment during operation

(a) Ensure that if operators notice any defect or abnormality in the Hoisting Equipment during Hoisting Operations (such as abnormal noise, temperature,

smell, etc.) the operator shall stop the Hoisting Operation immediately;

(b) Identify the cause of the defect or abnormality and make necessary repairs by using authorised and qualified specialist mechanics, electricians or representative technical engineers authorised by the Hoisting Equipment manufacturer; and (JC196)

(c) Ensure that the repaired Hoisting Equipment shall not be put in operation unless certified by the HSO.

(12) Condition of Ropes, Slings and Chains

Ensure that untested, uncertified, broken, damaged, deformed or defective ropes, chains or slings shall not be used.

(13) Adverse Weather

Take the following measures in addition to JSSS 2.7 [*Adverse Weather Requirements*]:

(a) Hoisting Equipment is left in a safe condition when not in use and particularly if adverse climatic conditions can be anticipated;

(b) All anchors, outriggers and supports are secure and adequate to fix and support the Hoisting Equipment in position during any adverse climatic conditions;

(c) Booms and jibs shall be secured to prevent any instability or collapse; and

(d) Before resuming any Hoisting Operation after any adverse weather, inspect Hoisting Equipment using the daily and periodic checklists specified in JSSS 5.2.4 [*Inspection of Hoisting Equipment and Rigging Equipment*].

(14) Use of Hoisting Equipment for Contractor's Personnel

As a general rule, Hoisting Equipment shall not be used for transporting or hoisting Contractor's Personnel.

In exceptional circumstances and if so approved by the HSO, use of Hoisting Equipment may be allowed when the following all measures are taken:

(a) Dedicated gondola for transporting or hoisting shall be provided;

(b) Prevention measures shall be taken to avoid turning and falling of gondola;

(c) The assumed load (i.e. 1.3 times of total weight of gondola and workers on board plus 500 kgf) shall not exceed the Rated Capacity of the Hoisting Equipment/Safe Working Load; (JC196)

(d) Wires and ropes of Hoisting Equipment shall have a safety factor of at least 10 against the assumed load;

(e) Wire ropes of Hoisting Equipment shall have a safety factor of at least 10 against the assumed load;

(f) Lowering the gondola shall be by powered system which prevents any free drop; and

(g) Use of PFAS of any Contractor's Personnel in the gondola shall be ensured.

JV196: modified and added.
NK: Related with JC193, these additions of /Safe Working Load will not be made.

5.3 HOISTING EQUIPMENT - CRANES

~~(Refer also to JSSS Chapter 4 [*Contractor's Equipment*])~~ (JC197)

5.3.1 Planning, Installation and Removal

Unless otherwise approved by the HSO, the Contractor shall employ an appropriately qualified, skilled and experienced crane specialist(s) that shall select the required type and capacity of crane, plan the Hoisting Operation including mobilising, assembly, erection, use, dismantling and removal of cranes. The Contractor's specialist shall:

(1) Investigate the location and position for installation, plan the appropriate installation method taking account of all Hoisting Operation requirements, site and working conditions, location of obstacles, etc.

(2) Investigate the working area and ensure the safety of the crane and any crane rails.

(3) Design and construct crane foundation, assemble and install the crane with proper structural design and in compliance with the manufacturer's written instructions.

(4) Conduct completion inspection, load test and stability test of the crane.

(5) Dismantle and remove and transport cranes in a planned and systematic manner in compliance with the manufacturer's written instructions.

5.3.2 Additional Requirements for Mobile cranes

(1) Position mobile cranes where there are no obstacles within the operation range.

(2) Where obstacles exist, plan the appropriate operation to avoid the obstacles and ensure that operators and signallers comply with this plan.

(3) Ensue that ground has sufficient and even bearing capacity to ~~avoid all risk of~~ prevent the crane from (JC198) subsiding and overturning. Where necessary or where there is any risk of damaging surface paving or underground services, provide temporary steel plates of suitable size, thickness and to support the crane and avoid any risk of overturning during operation.

JC198: no risk : Risk は消えることはないので、no risk とは言えない。to prevent ….といった表現に適宜修正しています。以下が関連条項。

Because risk does not disappear, it cannot be said to say no-risk. Therefore, it is altered to "to prevent" in the relevant Clauses such as follows:.

4.3.13
4.5.1(3)
6.7.7(5)
6.8.4(2)
6.8.4(3)
7.6.2 (1)
10.6.2(5)

(4) Provide steel plate load-spreader pads to support outriggers and prevent them from subsiding.

(5) Fully extend outriggers or extension type crawlers to the maximum position.

(6) When the outriggers or crawlers cannot be extended to the maximum position, adjust the Rated Capacity of the mobile cranes to suit lower capacity commensurate to the actual extension length of outriggers or crawlers.

(7) Ensure that the actual Rated Capacity of the mobile crane is clearly shown and also advised to operators and Riggers.

(8) Activate the over-load prevention device of mobile cranes and accurately input the operational conditions of booms and outriggers.

(9) Cease the Hoisting Operation from time to time and check upon the condition of the outriggers or crawlers, implement adequate remedial measures if there is any subsidence and prohibit continuation of the Hoisting Operation until the crane has been re-inspected

and certified as safe by the HSO.

(10) After the Hoisting Operation:

(a) When the mobile crane is not driven, fix the hooks of crane at the safe position;

(b) When the mobile crane is driven, take the following measures before driving:

(i) Attach fixing pin on each part;

(ii) Apply the brake of the turning device and winch drum; and

(iii) Turn off all switches related with operation of cranes.

5.4 RIGGING EQUIPMENT

5.4.1 Hoisting and Rigging Equipment

(1) All items of Rigging Equipment shall be labelled to show all pertinent information, such as the name of the manufacturer, date of manufacture, the Safe Working Load, date of the latest periodic inspection~~,~~ and its expiration date, etc. (JC199)

(2) The Contractor shall obtain Rigging Equipment from reputable manufacturers approved by the HSO and shall not make or repair his own Rigging Equipment at the Site.

(3) Rigging Equipment shall only be used:

(a) When certified as safe ~~to~~ for (JC199) use by the HSO in accordance with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*];

JC199: added and modified.

(b) Within the Safe Working Load; and

(c) In compliance with the manufacturer's written instructions.

(4) Rigging Equipment shall be removed from service, tagged as such and destroyed or removed from the Site, where required by the standards noted in JSSS 5.1.3 [*Compliance Standards*] including (but not limited to) the following conditions:

(a) Wire ropes

(i) Where one-tenth or more of the element wires are broken or cut in any one strand.

(ii) Where the reduction ratio of diameter due to use, exceeds 7% of the original nominal diameter at the date of manufacture.

(iii) With kink or deformation.

(iv) With excessive wear, corrosion or defect.

(b) Chains

(i) Where elongation due to use exceeds 5% of the original nominal length at the date of manufacture.

(ii) Where the diameter of links has reduced by more than 10 % since the date of manufacture.

(iii) With excessive wear, cracks, corrosion or defect.

(c) Hooks, shackles

(i) Signs of deformation.

(ii) With excessive wear, cracks, corrosion or defect.

(d) Synthetic fibre ropes or slings

(i) Broken or cut strands.

(ii) With excessive wear or defect.

5.4.2 Further Safety Requirements for Rigging

The Contractor shall fully comply with the requirements of the standards noted in JSSS 5.1.3 [*Compliance Standards*] including taking the following measures to prevent the risk of injury:

(1) Attach colour-coded self-adhesive vinyl tape and labels for slings visibly indicating the month of inspection and whether suitable for use.

(2) Inspect all Rigging Equipment before start of works.

(3) Select and use suitable Rigging Equipment depending on the weight and shape of Goods.

(3) (JC200) Apply appropriate set up, provide fittings and accessories including clips and friction pads during Hoisting Works to ensure that the hoisted load (including bundled loads) are secure and will not move or slip, for example, cable-laid slings referred to BS EN 13414-3 Steel wire rope slings – Safety, Part 3: Grommets and cable-laid slings.

(4) Hoist loads at or above the centre of gravity.

(5) Attach guide ropes to the hoisted loads to assist with positioning.

(6) Securely store and protect Rigging Equipment to maintain in good condition and to prevent damage from rain, dust or contamination.

JC200: typo of numbering.

CHAPTER 6: TEMPORARY WORKS

6.1 GENERAL REQUIREMENTS OF TEMPORARY WORKS

This Section 6.1 applies to all Temporary Works included in JSSS Chapter 6.

6.1.1 Design and Provision of Temporary Works Generally

Unless otherwise specified in the Particular Safety Specification, the Contractor shall take all necessary measures for the study, design, management, provision, safe use and safe removal of all Temporary Works as necessary to safely and systematically execute the Permanent Works and in accordance with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*], JSSS 1.37 [*Design and Management of Temporary Works*] and the specified standards.

The Contractor shall comply with the requirements specified in the Contract for Temporary Works and:

(1) Provide Temporary Works which are fit for the purpose for which they are intended and fully in accordance with the JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

(2) Manage the design, use and removal of Temporary Works fully in accordance with JSSS 1.37 [*Design and Management of Temporary Works*].

(3) Maintain and repair all Temporary Works when in use to ensure the continued optimal and safe performance.

(4) Monitor all Temporary Works when in use and any affected Permanent Works, existing buildings, structures, ground or surfaces that may be affected by the Temporary Works through regular inspection and (where necessary and specified) with relevant instrumentation to ensure that the Temporary Works are performing safely, to the designed limits and intended purpose.

(5) ~~The Contractor shall e~~ Ensure that: (JC201)

(a) Modification of Temporary Works is not allowed unless it is authorised by the HSO;

(b) Unauthorised use of Temporary Works by any persons is not allowed;

(c) The HSO shall inspect all Temporary Works upon completion of erection and certify and label them as "Safe for Use" before any use is allowed;

(d) The HSO shall regularly inspect Temporary Works and certify and label them appropriately to ensure the continuous safe use or, in the event that faults are discovered, certify them as "Not Safe for Use" and prevent access to the Temporary Works until repaired and re-inspected;

(e) The HSO shall inspect Temporary Works upon the completion of the required Permanent Works and before Temporary Works are dismantled, demolished and removed accompanied by the Contractor's Temporary Works ~~specialist~~ (JC201) staff specified in JSSS 1.37 [*Design and Management of Temporary Works*] as appropriate, and certify that the Permanent Works are completed and the Temporary Works can be safely removed; and

(f) The HSO shall inspect after removal of the Temporary Works to ensure that removal has been completed properly and that no part of the Temporary Works remains, that any rectification of the Permanent Works is completed and all is left in safe order and condition.

JC201: deleted.

(6) Safety Plan for Temporary Works

The Contractor shall include details of all Temporary Works in the Safety Plan to be submitted in accordance with JSSS 1.7 [*Contractor's Safety Plans*].

6.1.2 Method Statements

Refer to JSSS 1.9 [*Contractor's Method Statements*].

6.1.3 Monitoring the Performance of Temporary Works

(1) The Contractor shall monitor the Temporary Works to demonstrate that they are performing safely, to the designed limits and for the intended purpose.

(2) For more details, refer to JSSS 2.1.7 [*Monitoring and Records*].

(3) Contract Compliance

Notwithstanding the requirements of JSSS 2.1.7 [*Monitoring and Records*], the Contractor is reminded of his overall responsibility under the Contract for the Temporary Works.

The Contractor shall satisfy himself that the monitoring criteria and requirements specified in JSSS 2.1.7 [*Monitoring and Records*], or in other respective Chapters of JSSS and/or in the Particular Safety Specification, are sufficient to comply with his obligations under the Contract and he shall take any additional measures necessary to ensure the adequacy, stability and safety of Temporary Works.

6.1.4 Compliance Standards

(1) By reference to JSSS 1.37 [*Design and Management of Temporary Works*] and unless otherwise specified in the Particular Safety Specification, the Contractor shall comply with Sections 1 and 2 of BS5975, Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework as management standard with respect to design, erection, use and dismantling of Temporary Works.

(2) In relation to Temporary Works, the Contractor shall, subject to JSSS 1.4.5 [*Specified Standards*] also comply with:

(a) Section 3: Falsework of BS5975, Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework; ~~and~~

(b) Such standards that are referred to in particular parts of JSSS. or,

(c) Other standards proposed by the Contractor to which the consent of the Engineer is provided. (JC202)

JC202: added.
NK: To MD, I think "and" cannot be deleted.

6.2 EARTHWORK SUPPORT

6.2.1 General

(1) Refer to JSSS Annex 1.1: [*Definitions and Abbreviations*] for the definition of Earthwork Support.

(2) The Contractor shall maintain the structural integrity of the Works and Other Properties that could be affected by the Excavation Works and shall provide and maintain whatever Earthwork Support is necessary to comply with this requirement and ensure the safety of all persons that are in, under or adjacent to any excavation and to avoid any damage.

(3) Earthwork Support shall include for example ~~the provision of~~: (JC203)

(a) Timberwork including sheeting, planking, strutting and support systems;

(b) Steel sheet piling including shoring, strutting and support systems;

(c) Specialis~~t~~ed (JC203)support systems such as diaphragm walling, steel pipe piling, contiguous piling, soldier piling and lagging, and the like;

(d) Ground improvement, slope stabilisation, injection, ground freezing and the like; and

(e) Ground Anchors.

JC203: deleted and modified.

~~(4) The requirements for providing Earthwork Support may be waived by the HSO for the following excavations which have been inspected at the Site by him and judged by him to be safe, stable and free from any risk of movement or collapse:~~ In the case of (a) and/or (b) hereof, the Earthwork Support may not be required, if in the opinion of the HSO, conditions of the site in excavation is sufficiently safe, stable and free from danger of movement or collapse, and he gives a permission of no-Earthwork Support: (JC204 & 205)

JC204: modified.
JC205: is “hereof” “hereunder” or “below”?

(a) Excavation in rock; ~~and~~ (JC206)

(b) Excavation less than 1.5 m deep.

(5) For sloping or benched sides to excavations (in lieu of Earthwork Support), refer to JSSS 7.2.1 (3) ~~[*Excavation Work - Particular Safety Measures*]~~ (JC206)

JC206: deleted.

6.2.2 Planning and Design

The Contractor shall design all Earthwork Support so that it is fit for the purpose for which it is intended and take account ~~all relevant site data provided by the Employer, all relevant Site data obtained by the Contractor in accordance with GC 4.10 and including:~~ of ground conditions and surrounding conditions including: (JC207)

(1) The effects of ground water including liquefaction, boiling or piping, heave, displacement and the like.

(2) The effect of vibration from site operations including piling or ground improvement.

(3) The effect of adjacent road or rail traffic.

(4) The requirements for safe access and working space necessary to execute the ~~Permanent~~ (JC207) Works.

JC207: deleted and modified.

6.2.3 ~~Inspection and~~ Monitoring (JC208)

JC208: deleted.

~~Refer to JSSS 2.1.7 [*Monitoring and Records*].~~

~~Further requirements for work in this Section are stated below.~~

~~(1) Visual Inspection and Monitoring~~

~~(a) The Contractor shall prepare a Visual Inspection Plan depending on the characteristics of the Site and the required Earthwork Support and carry out regular inspections based upon the content of the Plan; and~~

~~(b) Examples of inspection objects and inspection items are given in the following Table.~~

Refer to JSSS 2.1.7 [Monitoring and Records] for general requirement of monitoring and records.

The Contractor shall prepare a Monitoring Plan consisted with visual and instrument monitoring based on the Table 6.2.1[Example of Visual and Auditory Monitoring Items] and Table 6.2.2 [Example of Instrument Monitoring Items]

The contents of the tables are reference only, and the Contractor shall prepare a detailed Monitoring Plan and submit to the Engineer as a part of the Safety Plan or the Method Statement. (JC209)

JC209: deleted and added.

Table 6.2.1: ~~Visual Inspection Plan~~ Example of Visual and Auditory Monitoring Items (JC209)

JC209: revised.

	~~Inspection Object~~ Locations (JC210)	**~~Inspection~~ Monitoring Items** (JC210)
1	Earthwork Support: Faces, sheeting and piling	Meander/horizontal displacement and vertical displacement along top. Crack, deflection and swelling. Water leakage, mud inflow. Opening of joints or gaps in Earthwork Support.
2	Earthwork Support: Piles, walings and strutting (JC210)	Deflection, deformation and abnormal sound of struts and waling and other members. Settlement, floatation and twist of piles. Vertical or horizontal displacement, of struts and waling and other members. (JC210) Opening of joints or breakage of cross members, or breakage and loosening of bolts.
3	Base of Excavation	Water spring and ground water flow. Sand boiling. Heaving of the base. Liquefaction.

4	Neighbouring or adjacent Ground, paving and roads	Cracks, collapse, subsidence of pavement or ground surfaces. Opening of joints in paving and kerbs.
5	Neighbouring or adjacent Buildings or Structures	Cracks, subsidence, deformation and tilting of structures.
6	Underground Utilities	Displacement or leakage of or damage to underground utilities.

JC210: revised.

~~(2) Instrument Monitoring~~

(a) ~~The Contractor shall prepare an Instrument Monitoring Plan depending on the characteristics of the Site, the ground conditions and the Earthwork Support and carry out monitoring; and~~

(b) ~~Examples of inspection objects and inspection items are given in the following Table.~~ (JC211)

JC211: deleted.

Table 6.2.2: Example of Instrument Monitoring ~~Plan~~ Items (JC212)

	~~**Object**~~ **Locations**(JC212)	~~**Inspection**~~ **Monitoring Items** (JC212)
1	Earthwork Support: Faces, sheeting and piling	Displacement, stress of Earthwork Support. Earth pressure and water pressure acting on Earthwork Support.
2	Earthwork Support: Piles, walings and strutting (JC212)	Axial force of struts, other supports and ground anchors.
3	Base of Excavation	Displacement of base of excavation. Water pressure of ground water, rate of water inflow.
4	Neighbouring or adjacent ground, paving and roads	Displacement of neighbouring or adjacent ground. Ground water level.
5	Neighbouring or adjacent buildings or structures	Displacement; cracks, weakening, subsidence, deformation and tilting of structures.
6	Underground Utilities	Displacement or leakage of or damage to underground utilities.

JC212: modified.

6.2.4 General Safety and Construction Requirements

(1) Materials and equipment to be used for Earthwork Support shall be appropriate for the width and depth of the excavation and free from damage or defects that might impair their proper function.

(2) Workers shall not be allowed to enter any excavation until Earthwork Support is installed prior to the work.

(3) Earthwork Support shall proceed progressively so that no excavated faces are left without support or at risk of weakening or collapse at any time.

(4) Excavation to a level greater than 60cm below the planned bottom level of support when the support itself is not yet installed shall not be allowed.

(5) If temporary removal of individual members of Earthwork Support is necessary, safety measures shall be taken to ensure the safety of workers, such as installing additional temporary struts to support the additional loads imposed on parts of the system.

(6) When removing Earthwork Support, the Contractor shall prohibit anyone other than the workers engaged in the removal work to enter the working area and vicinity.

(7) Backfilling and compaction of any excavation shall be performed in parallel with the removal of Earthwork Support.

6.2.5 Safety Measures for Shoring

(1) "Shoring" shall include waling, shoring, strutting and like support.

(2) Shoring shall be securely installed and fixed to Earthwork Support to prevent detachment and any movement or failure.

(3) All members acting in compression (excluding diagonal struts) shall be butt-jointed, and timber shoring shall be jointed with two or more doubling plates.

(4) Connecting parts of shoring or diagonal shoring or intersections, shall be reinforced with backing plates and bolts (timber) and welding with reinforcing plates (steel).

(5) For earth retaining work with intermediate piles, fix struts on intermediate piles rigidly.

(6) When shoring is fixed to or relies on an existing structure or building, the Contractor shall ascertain that the structure or building is able to withstand the applied load.

(7) Gaps between earth retaining wall (steel sheet piles, H-shape steel piles and the like) and waling shall be filled with mortar, concrete, steel plates and suitable wedges.

(8) Connections between struts and walings (JC213) shall be reinforced with ready-made stiffeners, stiffener plates, concrete/mortar filling, stiffener jacks, etc.

JC213: deleted.

6.2.6 Safety Measures for Ground Anchor Work

(1) Anyone other than designated personnel shall not operate the boring machine.

(2) No one (except those essential to the post-tensioning operations) shall be permitted to be behind the tensioning jack during tensioning to prevent any injury through breaking of the anchor tendon during tensioning.

(3) The Contractor shall check any damage in the grout hoses and joints before commencing any grout injection.

6.2.7 Adjacent Goods, Excavated Spoil and the like

(1) When placing any Goods, excavated spoil and the like on the ground surface at the top and adjacent to any excavation, the Contractor shall take measures to prevent it from falling.

(2) The Contractor shall not place any Goods, excavated spoil, backfill material and the like where the weight exceeds the load considered in the design of the Earthwork Support.

6.3 COFFERDAMS

6.3.1 General

(1) Refer to JSSS Annex 1.1: [*Definitions and Abbreviations*] for the definition of Cofferdam.

(2) Cofferdams are generally constructed as earth dykes, caissons, steel sheet piling, double steel sheet piles, steel pipe piles and the like.

6.3.2 Planning and Design

The Contractor shall design Cofferdams so that they are fit for the purpose for which they are intended and ~~take account all relevant site data provided by the Employer, all relevant Site data obtained by the Contractor in accordance with GC 4.10 and including:~~ take account of ground conditions and surrounding conditions including:

(1) The effect of vibration from site operations including piling or ground improvement.

~~(2) The requirements for safe a Access and working space necessary to execute the Permanent Works.~~

~~(3) The effect of any vibration from site operations (e.g. driven piling).~~

(4) Access and working space necessary to execute the Works.

(5) River discharge, water levels, tide levels, wave height, free board, seismic load, external force and any other relevant river, lake or marine conditions.

(6) ~~Marine~~ Waterborne traffic.

(7) Avoidance of any damage by piling operations and the protection of the structural integrity of existing river or canals, banks, dykes and the like.

(8) Reduction of river cross sectional area, increased flow rates and protection of the structural integrity of existing river or canal banks, dykes and the like.

(9) Effects of tides, wave action, flooding and the like, the consequent need for additional shoring and avoidance of loosening of shoring and joints.

(10) Provision of at least two safe ~~escape~~ evacuation routes from the working areas by means of ladders, stairs, etc. to evacuate in the case of any danger of collapse of or inundation in the Cofferdam.

(11) Provision of life-saving equipment including buoyancy jackets, lifebuoy, ropes and (where necessary) standby boats.

(12) Measures for avoiding water pollution from construction and dismantling of Cofferdams.

(13) Measures for safe dismantling and removal. (JC214)

JC214: deleted and modified.

6.3.3 ~~Inspection and~~ Monitoring

~~Refer to JSSS 2.1.7 [*Monitoring and Record*s].~~

~~Further requirements for work in this Section are stated below.~~

~~(1) Visual Inspection and Monitoring~~

~~(a) The Contractor shall prepare a Visual Inspection Plan depending on the characteristics of the Cofferdam and carry out regular inspections based upon the content of the Plan; and~~

~~(b) Examples of Inspection Objects and Inspection Types are given in the following Table.~~

Refer to JSSS 2.1.7 [*Monitoring and Records*] for general requirement of monitoring and records.

The Contractor shall prepare a Monitoring Plan consisted with visual and instrument monitoring based on the Table 6.2.1[Example of Visual and Auditory Monitoring Items] and Table 6.2.2 [Example of Instrument Monitoring Items]

The contents of the tables are reference only, and the Contractor shall prepare a detailed Monitoring Plan and submit to the Engineer as a part of the Safety Plan or the Method Statement. (JC215)

JC215: JC214: deleted and modified.

~~**Table 6.3.1: Visual Inspection Items**~~(JC217)

Table 6.3.1: Example of Visual and Auditory Monitoring Item

JC217: modified.

	~~**Inspection Object**~~ **Locations**(JC217)	~~**Inspection Type**~~ **Monitoring Items** (JC217)
1	Cofferdam Generally	Water seepage. Ability and capacity of pumping arrangements to maintain safe working conditions. Meander/horizontal displacement and vertical displacement along top. Crack, deflection and swelling. Opening of joints.
2	Piles, shoring and strutting	Deflection, deformation and abnormal sound of piles, struts and waling and other members. Opening of joints or breakage of piles, cross members, or breakage and loosening of bolts.
3	Base of Excavation	Water spring and ground water flow. Sand boiling. Heaving of the base.
4	Neighbouring Properties or Structures on or outside the Site	Cracks, subsidence, deformation and tilting of structures.

~~(2) Instrument Monitoring~~

~~(a) The Contractor shall prepare an Instrument Monitoring Plan depending on the characteristics of the Site, the ground conditions and the required Cofferdams and carry out monitoring; and.~~

~~(b) Examples of inspection objects and inspection types are given in the following Table.~~ (JC218)

JC218: deleted.

Table 6.3.2: Example of Instrument Monitoring Items (JC219)

JC219: modified.

	~~Inspection Object~~ Locations(JC219)	~~Inspection Type~~ Monitoring Items (JC219)
1	Cofferdam Generally	Displacement, stress of Earthwork Support. Earth pressure and water pressure acting on Earthwork Support.
2	Shoring and strutting	Axial force of strut, other supports and ground anchors.
3	Base of Excavation	Displacement of base of excavation. Water pressure of spring of water, water inflow.
5	Neighbouring Properties or Structures on or outside the Site	Displacement: cracks, weakening, subsidence, deformation and tilting of structures.
6	Underground Utilities	Displacement, damage or leakage ~~to~~ of underground utilities. (JC219)

6.3.4 General Safety and Construction Requirements

(1) ~~The Contractor shall construct the Cofferdams with shoring by the same method stipulated in JSSS 6.2.5 [*Safety Measures for Shoring*]~~. For shoring works, refer JSSS 6.2.5[Safety Measures for Shoring]. (JC219)

(2) The Contractor shall provide training to all Contractor's Personnel who are to work on the construction, maintenance and removal of the Cofferdam or within the Cofferdam, so that they are aware of all risks and countermeasures including water leakage, adverse weather, severe waves or adverse river or marine conditions, so that they can work safely and when necessary, evacuate the working areas efficiently and safely.

(3) The Contractor shall display visible and clear warning notices of all hazards and advisory notices giving directions and information, including emergency contacts, safe escape routes, directions to and locations of life-saving equipment, assembly areas, ~~escape~~ evacuation boats and the like.

(4) The Contractor shall implement measures to prevent collisions with ~~marine or river~~ waterborne traffic, including warning signs and lights during the night or in heavy rain mist or fog.

(5) The Contractor shall establish a system to confirm the safety of the Cofferdams, appoint a person-in-charge who shall be present at all times and shall be responsible for issuing an evacuation order if and when necessary.

(6) The Contractor shall evacuate Contractor's Personnel whenever there is any danger due to water leakage through Cofferdams or from the ground within the working area.

(7) Whenever any defect is identified in the Cofferdam, the Contractor shall implement repair and improvement measures to ensure the safety of Contractor's Personnel and prevent any personnel from re-entering the Cofferdam until it has been inspected by the HSO and certified by him to be "safe for use". (JC219)

JC219: deleted and modified.

6.3.5 Excessive and Sudden Rise in Water Level.

(1) The Contractor shall analyse any risk due to sudden rise of water level and excessive water level above the design basis for the highest water level and prepare for this as applicable in the Safety Plan.

(2) This shall include procedures for monitoring water levels as described below.

(a) Monitoring water levels with instruments and recording equipment at the Site and obtaining forecasting information of water levels;

(b) Communications among persons in charge of monitoring of water levels, persons responsible for the works in the Cofferdams, the HSO and workers in the Cofferdam;

(c) Instructions to Contractor's Personnel for evacuation;

(d) Stop work in accordance with JSSS 1.13 [*HSO – Scope of Duties and Authority*]; and

(e) Resume work when water level has subsided and after inspection and certification by the HSO that it is safe to do so.

6.3.6 Monitoring Water Level and Other Conditions

In addition to the requirements of JSSS 2.1.7 [*Monitoring and Records*], the Contractor shall monitor and keep records of all climatic, river and/or marine conditions in the direct vicinity of any Cofferdam including for example, the water level at various times throughout the day, tidal data, speed and direction of waterflow, wave height, wind speed and direction.

The Contractor shall provide all instruments and facilities to obtain the data and submit reports to the Engineer on a daily basis and compile on weekly basis.

6.4 WALKWAYS~~, LADDERS AND STEPLADDERS~~ (JC220)

JC220: deleted.

6.4.1 General

(1) This Section includes safety measures relating to the safe movement of persons to and around the Site with respect to walkways.

(2) In this Section, "walkways" shall mean route or passage for safe movement of pedestrians including walkway, bridge type walkway, covered walkways, ramp, ladders and stepladders.

(3) Portable ladders and stepladders other than fixed ladders shall not be used for walkways in principle. Portable ladders and stepladders may be used ~~provided that~~ , only if (JC221) the risk of their use is low.

JC221: deleted and added.

(4) For temporary steps and staircase structures the requirements of JSSS 6.5 [*Scaffolding*] shall apply.

(5) For Fall prevention from walkways, ladders and stepladders the requirements of JSSS 2.5 [*Fall Prevention*] shall apply.

(6) Details of the following shall be included in the Safety Plan required by JSSS 1.7 [*Contractor's Safety Plans*] and JSSS 6.1.1 (6) [*Safety Plan for Temporary Works*]:

(a) Locations and available periods of walkways to be provided;

(b) Drawings of walkway structures, indicating structure type, materials and main dimensions for bridge type walkways where the height and length is 10m or more;

(c) Types of temporary walls, barriers or other separation between walkways and working areas, roads or footpaths on or around the Site; and

(d) Locations of emergency exits and evacuation routes.

(7) The Contractor shall:

(a) Provide designated walkways to, in and around the various workplaces at the Site to ensure the safe and secure movement of all persons at all times;

(b) Provide and maintain clear signage so that all users are aware of the locations and routes;

(c) Provide and maintain adequate lighting;

(d) Ensure that walkways have sufficient dimensions and load-bearing capability for the intended purpose;

(e) Ensure that there are no obstacles in walkways and that surfaces are level and safe, maintain all in a clean and orderly condition to avoid any falls, slips and injury;

(f) Ensure that walkways do not exceed a gradient of 30 degrees. Steeper gradients shall be provided with steps or staircases or ladders where appropriate; and

(g) Ensure that ramps, steps and staircases have slip resistant surfaces and that they are provided with handrails and toe boards in accordance with JSSS 2.5.5 [*Handrails*] and JSSS 2.5.6 [*Toeboards*].

6.4.2 Emergency Exits and Safe ~~Escape~~ Evacuation Routes(JC221)

The Contractor shall provide clear and illuminated signage so that all persons are made aware of the locations of emergency exits and safe ~~escape~~ evacuation routes and maintain all such locations and routes in a clean, safe and readily available condition. (JC221)

6.4.3 Vertical Access

The Contractor shall provide steps, stairs and ramps as means of providing safe access or egress from excavations or different working levels.

Steps, stairs and ramps shall be constructed as follows:

(1) With Scaffolding in accordance with JSSS 6.5 [*Scaffolding]*, provided with handrails and non-slip treads. (JC221)

(2) With purpose made timber or metal ramps comprising plywood boarding and structural timber framing.

JC221: modified.

6.4.4 Portable Ladders and Stepladders (JC222)

JC222: 6.4.4 に出てくる ladders は全て potable ladders にした方がよいのではないでしょうか？ご検討下さい。

Please check if all “ladders” shall be replaced with “poertable ladders”

NK: I think they are better to be replaced. To MD, how do you think?

The Contractor shall comply with the following requirements regarding the use of portable ladders and stepladders:

(1) Portable ladders shall:

(a) Be of sound structure, clean and not contaminated by any slippery material;

(b) Be without visible signs of defect, damage, corrosion, and shall otherwise in safe condition;

(c) Be at least 30 cm wide;

(d) Have steps with an interval of 25cm to 35cm and evenly spaced; and

(e) Have slip-proof steps or have other measures to prevent slipping.

(2) Stepladders shall

(a) Be of sound structure, clean and not contaminated by any slippery material;

(b) Be without visible signs of defect, damage, corrosion, and shall otherwise in safe condition;

(c) Have an angle between the front rail and the floor not exceeding 75 degrees and for folding stepladders they shall be equipped with a lock (such as a spreader with lock) to secure the angle made by the front rail and the floor;

(d) Steps shall be non-slip and of sufficient size to ensure safe operation; and.

(e) Rails shall have non-slip feet or shoes.

(3) Use of ladders and stepladders

The Contractor shall ensure with respect to use of both ladders and stepladders that:

(a) Users shall read and follow all labels/markings on ladders or stepladders, be aware of and never exceed the maximum load rating of the ladder or stepladder and of the weight it is supporting, including the weight of any tools or equipment;

(b) Users shall avoid electrical hazards, always look for overhead power lines before handling ladders or stepladders. Avoid using metal ladders or stepladders near power lines or exposed energised electrical equipment;

(c) Ladders or stepladders shall be inspected prior to use. If a ladder or stepladder is damaged, it shall be removed from service and suitably tagged until repaired or discarded; and

(d) Ladders or stepladders shall only be placed on a stable, firm and sufficiently strong base giving level and safe support and so that the rungs or steps remain horizontal, as well as any loading placed on it;

(4) Additional Requirements for Use of ladders

The Contractor shall ensure with respect to use of ladders:

(a) Ladders shall maintain an angle between foot and floor of L (horizontal length): H (height) = 1: 4 (75.5 degrees);

(b) Ladders shall have the top projecting at least 1 m over the landing floor;

(c) Ladders shall not be placed on boxes, or other unstable bases to obtain additional height and connected ladders to give greater height or reach shall not be allowed;

(d) Suspended ladders shall be anchored in a secure manner so that they cannot be displaced or swing;

(e) Ladders shall be secured before any use and prevented from slipping during use by:

(i) Securing the side rails at or near the top and the bottom;

(ii) Providing an effective anti-slip shoe or foot; and

(iii) Having another worker support the lower part of the ladder.

(f) No extendable ladder shall be used where its sections cannot be locked and which could therefore move while in use; and

(g) Where a ladder or a series of ladders rise for a vertical height of 9 m or more above the base level, safe landing areas or rest platforms shall be provided at suitable intervals wherever possible.

(5) Additional Requirements for Use of Stepladders

The Contractor shall ensure with respect to use of stepladders:

(a) Stepladders shall not be used for work at heights of 2m or more. The Contractor shall adopt other measures for work in excess of 2m such as or providing Scaffolding in accordance with JSSS 6.5 [*Scaffolding*];

(b) Step ladders shall not be used as a single ladder or in a partially closed position;

(c) Treads of stepladders shall have the correct sized area and slip resistant finish for safe working;

(d) Restraint Clasps shall be securely locked before any use;

(e) Stepladders shall not be placed on unstable or uneven surfaces;

(f) Stepladders shall not be positioned in front of doors;

(g) The top rung of a ladder or step of a step ladder shall not be used as a rung/step unless designed for that purpose;

(h) For use of Stepladders as a support for trestle Scaffolds refer to JSSS 6.5 [*Scaffolding*]; and

(i) The user can maintain a safe handhold when carrying a load unless this is otherwise justified by the height of the task, ~~whether the handhold is available before and after the task, when it is light work, when it avoids side loading and overreaching, when the step ladder can be tied and in any event after a risk assessment has demonstrated that the use of a stepladder is safe and justified.~~ nature of work and the like. (JC222)

JC222: そもそも脚立はなるべく使わないということもあり、あまりこういうことを詳しく書かなくてもよいと判断しました。また、英語が華麗すぎてわからないので簡単にしました。

In the first place, I don't use a

Stepladders are basically not to be used as much as possible, therefore we judged not necessary to specify in detail and made simple stipulation

6.4.5 Inspection

In accordance with JSSS 1.13 [*HSO - Scope of Duties and Authority*] the HSO shall regularly inspect all walkways, ladders and step ladders, ensure that same are safe and fit for the intended purpose and visibly certify each as “Safe for Use” or otherwise.

6.5 SCAFFOLDING

6.5.1 General

(1) This Section contains requirements for various types of Scaffolding including supported scaffolds (for example tube and coupler scaffolds and fabricated frame scaffolds), mobile scaffolds, suspended scaffolds, trestle scaffolds and mobile elevating work platforms.

(2) Not all types of Scaffolding are separately described in this Section and the requirements of this Section are therefore of general application. Requirements for any one type of Scaffolding shall also apply generally to all types and configurations unless otherwise stated or apparent from the wording and context.

(3) All Scaffolding shall be designed, erected, tested, inspected, used, dismantled and removed by Contractor's Personnel that have been trained and certified for such operations in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*].

(4) All Scaffolding, shall be carried out in compliance with the manufacturer's written instructions or the design of the Contractor. (JC223)

JC223: added.

(5) The design, management, provision, safe use and safe removal of Scaffolding shall comply with the requirements of JSSS 6.1.1 [*Design and Provision of Temporary Works Generally*].

(6) Unless specified elsewhere in JSSS or in any of the compliance standards, all Scaffolding and Scaffold components shall be capable of supporting, without failure, its own weight and at least 4 times the maximum intended load applied or transmitted to it.

(7) Scaffolds and Scaffold components shall not be loaded in excess of their maximum intended loads or rated capacities, whichever is less.

(8) Scaffolding shall not be used for any purpose other than the intended original purpose and for example shall never be used for hoisting loads. The Contractor shall provide other specific types of Contractor's Equipment (such as material hoists) for that purpose.

(9) Scaffolding shall be removed immediately upon completion of the work for which it is provided.

6.5.2 Compliance Standards

(1) By reference to JSSS 1.4 [*JSSS – Compliance with JSSS and Other Regulations*], any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall comply with the technical requirements of any one of the following standards:

(a) OSHA PART 1926-Safety and Health Regulations for Construction, Subpart L-Scaffolds;

(b) ANSI/ASSP A10.8 – 2019 Scaffolding Safety Requirements equipment - Part 1: Scaffolds - Performance requirements and general design, USA; and

(c) BS EN12811-1:2003 Temporary works equipment - Part 1: Scaffolds - Performance requirements and general design, UK.

6.5.3 Notices to be Displayed on Scaffolds

(1) Following inspections by HSO, suitable signage shall be applied to Scaffolds clearly indicating for example:

(a) "Scaffold Complete and Safe For Use"

(b) "Scaffold Not Complete - Do Not Use"

(c) "Scaffold Not Safe For Use"

(2) When any Scaffold is to be used for loading of Goods, the Contractor shall display a notice indicating the maximum load capacity of each Scaffold.

(3) Scaffolds shall also be tagged with the names of the erector and the person responsible for inspection and maintenance of the Scaffold.

(4) All notices shall be clearly visible and in easy-to-see locations.

6.5.4 Scaffolding Assembly, Erection, Alteration and Dismantling Generally

The Contractor shall take the following measures when assembling or erecting, altering or dismantling all types of Scaffolding:

(1) Scaffolding shall be assembled or erected, altered and dismantled only by competent personnel and the work should always be carried out under the direction of a competent Superintendent.

(2) Working areas where Scaffolding is being assembled or erected, altered and dismantled shall be ~~designated as Dangerous Areas, and the Contractor shall~~ enclosed the working area with temporary fences or barriers~~.~~. The Contractor shall (JC223) prevent entry of any non - authorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry - Dangerous Work*].

JC223:

(3) During erection of Scaffolding 2m high and above, boarded areas shall be provided for safe temporary storage of Scaffolding tubes, couplings, fittings or components and other materials and equipment.

(4) All workers engaged in the assembly or erection, alteration and dismantling of any Scaffolding shall be provide with PFAS and ensure that such workers use this.

(5) Scaffold boards shall each be securely fixed at a sufficient number of points to provide constant support with no movement or dislocation and no gaps that may create a dropping hazard.

(6) When moving Scaffold boards, ensure that they are securely supported in at least three (3) locations, the length of any projection from supports shall be at least 10cm and not exceeding one-eighteenth of the length of the Scaffold boards.

(7) When stacking the timber sole plate or runners ensure that they are stacked in the longitudinal direction, over supports and with 20 cm overlaps.

6.5.5 Inspection and Maintenance of Scaffolding

Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the Contractor shall comply with the following:

(1) Every Scaffold from which a person could fall 2m or more shall be thoroughly examined by the HSO (or his delegated assistant):

(a) Before it is brought into use;

(b) After any substantial alteration or extension;

(c) At least once in every 7 days; and

(d) Whenever it has been exposed to adverse climatic conditions, earthquake or other factors which may have affected its safety.

(2) A written record of the examination and regular inspections with details of any repair measures shall be prepared and kept by the HSO.

(3) The examinations and regular inspections shall include:

(a) Check that the Scaffold is provided and used in accordance with the Method Statement, Safety Plan and its design;

(b) Condition of Working Platforms (JC224) and of any damage to fixings;

(c) Condition and any loosening at the fastening, connecting and mounting, portions of standards, ledgers, brackets, and the like;

(d) Condition and any damage and corrosion of couplings, fittings, clamps and accessories;

(e) Condition and any damage and corrosion of fall prevention facilities and that they are intact and secure;

(f) Condition of mountings and presence of toe boards;

(g) Condition of bases, screw jacks, castors, brakes, sole plates and the like and ensure there is no movement or settlement;

(h) Condition of mountings and presence of diagonal bracings, stays, anchors, ties and other bracing, support or reinforcement materials; and

(i) Condition of mountings and presence of posts, standards, ledgers and transoms.

(4) The Contractor shall carry out all necessary remedial and repair work necessary to rectify any deterioration, defect or damage and shall, if necessary, (JC224) stop the use of the Scaffolding until such work has been properly completed, re-inspected and re-certified as "Safe for Use" by the HSO.

JC224: modified.

6.5.6 Scaffold Platforms

Scaffold platforms shall comply with the following:

(1) Each platform on all working levels of Scaffolding shall be fully planked or decked between the front uprights and the handrail supports as follows:

(a) Platforms shall be of adequate size and strength and with true dimension and no twist or bending, no splits, holes or damage;

(b) Each platform unit shall be installed so that the space between adjacent units and the space between the platform and the uprights is no more than 2.5 cm wide, except where the Contractor can demonstrate that a wider space is necessary;

(c) Where the Contractor makes the demonstration provided for in paragraph (b) above, the platform shall be planked or decked as fully as possible and the remaining open space between the platform and the uprights shall not exceed 24 cm.; and

(d) The requirement to provide full planking or decking does not apply to platforms used solely as walkways or solely by the workers performing Scaffold erection or dismantling. In these situations, only the planking that the Contractor establishes is necessary to provide safe working conditions is required.

(2) Except as may be provided separately for individual types of Scaffold, Scaffold platforms and walkways shall be at least 45 cm wide.

Where ~~scaffolds must be used in areas that the Contractor can demonstrate are so narrow that platforms and walkways cannot be at least 45 cm wide, such platforms and walkways shall be as wide as feasible,~~ it is not practicable to provide 45 cm width, the Contractor shall secure a width as wide as feasible for the work, (JC225) and the workers on those platforms and walkways shall be protected from fall hazards by the use of handrails and/or personal fall arrest systems.

JC225: modified.

(3) Except as provided separately for individual types of Scaffold, the front edge of all platforms shall not be more than 36 cm from the face of the work, unless handrails are erected along the front edge and/or personal fall arrest systems are used to protect the workers from falling.

(4) Further requirements to those specified above, shall comply with the technical requirements of OSHA Subpart L-Scaffolds, 1926.451 General requirements, (b) Scaffold platform construction.

6.5.7 Supported Scaffolds

(1) General

(a) Scaffolds with a height to base width (including outrigger supports, if used) ratio of more than four to one (4:1) shall be restrained from tipping by guying, tying, bracing, or equivalent means;

(b) Poles, legs, posts, frames, and uprights shall bear on base plates and mud sills or other adequate firm foundation;

(c) Footings shall be level, sound, rigid, and capable of supporting the loaded Scaffolding without settling or displacement;

(d) Poles, legs, posts, frames, and uprights shall be plumb and braced to prevent swaying and displacement;

(e) When moving platforms to the next level, the existing platform shall be left undisturbed until the new bearers or end frames have been set in place and braced prior to receiving the new platforms; and

(f) Further requirements to those specified above, shall comply with the technical requirements of OSHA Subpart L-Scaffolds, 1926.451 General requirements, (c) Criteria for supported Scaffolds.

(2) Tube and Coupler Scaffolds

(a) Transverse bracing forming an “X” across the width of the Scaffold shall be installed at the Scaffold ends and at least at every third set of posts horizontally (measured from only one end) and every fourth runner vertically;

(b) On straight run Scaffolds, longitudinal bracing across the inner and outer rows of posts shall be installed diagonally in both directions, and shall extend from the base of the end posts upward to the top of the Scaffold at approximately a 45 degree angle;

(c) Where conditions preclude the attachment of bracing to posts, bracing shall be attached to the runners as close to the post as possible;

(d) Bearers shall be installed transversely between posts, and when coupled to the posts, shall have the inboard coupler bear directly on the runner coupler. When the bearers are coupled to the runners, the couplers shall be as close to the posts as possible;

(e) Runners shall be installed along the length of the Scaffold, located on both the inside and outside posts at level;

(f) Couplers shall be of a structural metal, such as drop-forged steel, malleable iron, or structural grade aluminium, the use of grey cast iron is prohibited; and

(g) Further requirements to those specified above, shall comply with the technical requirements of OSHA Subpart L-Scaffolds, 1926.452 Additional requirements applicable to specific types of Scaffolds, (b) Tube and coupler Scaffolds.

(3) Fabricated Frame Scaffolds

(a) Frames and panels shall be braced by cross, horizontal, or diagonal braces, or combination thereof, which secure vertical members together laterally. The cross braces shall be of such length as will automatically square and align vertical members so that the erected Scaffold is always plumb, level, and square. All brace connections shall be secured;

(b) Frames and panels shall be joined together vertically by coupling or stacking pins or equivalent means;

(c) Where uplift can occur, which would displace Scaffold end frames or panels, the frames or panels shall be locked together vertically by pins or equivalent means;

(d) Brackets used to support cantilevered loads shall:

(i) Be seated with side-brackets parallel to the frames and end-brackets at 90 degrees to the frames;

(ii) Not be bent or twisted from these positions; and

(iii) Be used only to support personnel, unless the Scaffold has been designed for other loads.

(e) Further requirements to those specified above, shall comply with the technical requirements of OSHA Subpart L-Scaffolds, 1926.452 Additional requirements applicable to specific types of Scaffolds, (c) Fabricated frame Scaffolds.

6.5.8 Suspended Scaffolds

(1) General

(a) Suspended Scaffolds comprise Working Platforms suspended from upper levels for example with ropes, cables or chains and all necessary support framing, with or without Hoisting Equipment; and (JC226)

(b) Further requirements to those specified above for suspended Scaffolds, shall comply with the technical requirements of OSHA, Subpart L-Scaffolds, 1926.451 [General requirements] and 1926.452 [Additional requirements applicable to specific types of Scaffolds].

(2) The following safety measures shall apply to interior hung Scaffolds which are suspended from roof structures, ceiling beams or other structural members:

(a) Capacity: of interior hung Scaffolds:

(i) Each Scaffold and Scaffold component except as provided in (ii) below shall be capable of supporting, without failure, its own weight and at least 4 times the maximum intended load applied or transmitted to it; and

(ii) Each suspension rope, including connecting hardware, used on non-adjustable suspension Scaffolds shall be capable of supporting, without failure, at least 6 times the maximum intended load applied or transmitted to that rope.

(b) Construction: of interior hung Scaffolds:

(i) Overhead supporting members (roof structure, ceiling beams, or other structural members) shall be inspected and checked for strength before the Scaffold is erected; and

(ii) Suspension ropes and cables shall be connected to the overhead supporting members by shackles, clips, thimbles, or other means that meet equivalent criteria (e.g., strength, durability).

(c) Inspection:

(i) Scaffolds shall be inspected before every work shift, and ~~I~~ if (JC226) any abnormality is found, the work shall be stopped; and

(ii) Wire ropes, chains, hooks and shackles used in the Scaffolds shall be inspected before every work shift in accordance with JSSS 5.4.1 [*Hoisting and Rigging Equipment*] If any abnormality is found, they shall be replaced.

(d) Prohibited activity

The use of any ladders or stepladders on suspended Scaffolds shall be prohibited.

JC226: modified.

6.5.9 Mobile Scaffolds

(1) Mobile Scaffolds shall be braced by cross, horizontal, or diagonal braces, or combination thereof, to prevent distortion or collapse of the Scaffold and to secure vertical members together laterally so as to automatically square and align the vertical members. Scaffolds shall be plumb, level, and squared. All brace connections shall be secured.

(2) Scaffold casters and wheels shall be locked with positive wheel and/or wheel and swivel locks, or equivalent means, to prevent movement of the Scaffold while the Scaffold is used in a stationary manner.

(3) Manual force used to move the Scaffold shall be applied as close to the base as practicable, but not more than 1.5 m above the supporting surface.

(4) Power systems used to propel mobile Scaffolds shall be designed for such use. Forklifts, trucks, similar motor vehicles or add-on motors shall not be used to propel Scaffolds unless the Scaffold is designed for such propulsion systems.

(5) Platforms shall not extend outward beyond the base supports of the Scaffold unless outrigger frames or equivalent devices are used to ensure stability.

(6) Where levelling of the Scaffold is necessary, screw jacks or equivalent means shall be used.

(7) Caster stems and wheel stems shall be pinned or otherwise secured in Scaffold legs or adjustment screws.

(8) Safety measures shall be applied before relocating the Scaffolds:

(a) Check the floor surface in advance to prevent the Scaffold from overturning due to any irregularities or obstructions;

(b) Move the Scaffold only after releasing brakes on all castors;

(c) Do not move the Scaffold when any workers or Goods are on the Scaffold;

(d) Ensure that there are no obstructions in the route including any overhead obstructions; and

(e) Do not allow any persons other than workers engaged in the relocation to enter the moving areas of the Scaffold or in the vicinity.

(9) Prohibited activity

Use of the Mobile Scaffolds shall be prohibited for the following:

(a) Use as a support for lifting dropping Goods, debris or waste materials or for dropping same;

(b) Use for the purpose of providing a barrier by covering with sheet material with the risk of collapse due to exposure to wind;

(c) Use for work of grit blasting or water jetting, where the reaction force can destabilise the Scaffold or workers on the Scaffold; and

(d) Use as floor to support mobile ladders, stepladders, trestles.

(10) Further requirements to those specified above shall comply with the technical requirements of OSHA Subpart L-Scaffolds, 1926.452 Additional requirements applicable to specific types of scaffolds, (w) Mobile scaffolds.

6.5.10 Trestle Scaffolds

(1) Trestle Scaffolds can comprise:

(a) Special proprietary type free-standing trestle platforms; or

(b) Scaffold boards or lightweight staging boards supported on stepladders or other tripod type portable ladders.

(2) For requirements on Stepladders refer to JSSS 6.4.4 [*Portable Ladders and Stepladders*].

(3) The following safety measures shall apply:

(a) The distance between the centre lines of the supporting stepladders shall not exceed 1.8m, width of the Scaffold boards shall be at least 45 cm;

(b) Scaffold boards shall not be placed any higher than the second highest rung or step of the ladder supporting the platform;

(c) If timber Scaffold boards are used, the overlap between boards shall be at least 20cm; and

(d) The length of projection of the platform from the end support shall be at least 10cm and not more than one-eighteenth of the length of the boards.

6.5.11 Mobile Elevating Work Platforms

This Clause specifies requirements for mobile elevating work platforms (also known as aerial lifts) including extendable boom platforms, articulating boom platforms, vertical towers and a combination of any such devices.

(1) The following safety measures shall apply for placing and operating mobile elevating work platforms:

(a) Only trained Contractor's Personnel, certified as such by the HSO shall be permitted to operate in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*];

(b) All operation shall be carried out in accordance with the manufacturer's written instructions;

(c) Mobile elevating work platforms shall never be used beyond the load limit ~~specified~~ recommended (JC227) by the manufacturer, which shall also be clearly displayed on the equipment; and

(d) Safety devices shall not be switched off or isolated.

(2) Measures before operation of mobile elevating work platform:

(a) Designate operation as "Dangerous Work" and in accordance with JSSS 2.3 [*Prohibition of Entry - Dangerous Work*], demarcate work areas and take measures to prevent entry to unauthorised personnel;

(b) ~~Place a Spotter to guide the mobile elevating work platform in accordance with JSSS 2.4 [*Spotters, Flagmen and the like*] and who can request help and lower the working platform should the operator be incapacitated and if somebody does fall, have an escape or recovery plan in place before hand~~; Place a Spotter, in

accordance with JSSS 2.4 [*Spotters, Fragman and the like*] to guide the mobile elevating work platform and, in case of emergency to properly address the situation (e.g. to call help when the operator is incapacitated); (JC227)

(c) Determine signals in accordance with JSSS 2.4.5 [*Signals*], and

(d) Determine in advance the appropriate working speed limit for the mobile elevating work platform according to the height of the Working Platform (JC227) and the length of the boom, etc. and ensure that the operator never drives the equipment in excess of this limit.

(3) Measures at locating mobile elevating work platform:

(a) The parking brakes of vehicle shall be set;

(b) Wheel chocks shall be installed before using the mobile elevating work platforms on an incline, provided they can be safely installed;

(c) When outriggers are used, they shall be positioned on pads or a solid surface; and

(d) Lift controls shall be tested each day prior to use to determine that such controls are in safe working condition.

(4) Measures at operation on mobile elevating work platform:

(a) Workers shall always stand firmly on the floor of the basket/working platform, and shall not sit or climb on the edge of the basket or use planks, ladders, or other devices for a work position;

(b) Workers shall use PPE including PFRS;

(c) Workers shall be prohibited from taking dangerous actions such as moving from the working ~~platform/basket~~ basket/Working Platform (JC227) to neighbouring structure, standing on and working from handrail;

(d) When the mobile elevating work platform has both platform (upper) and lower controls, the upper controls shall be in or beside the platform within easy reach of the operator. Lower controls shall provide for overriding the upper controls. Controls shall be plainly marked as to their function. Lower level controls shall not be operated unless permission has been obtained from the worker in the lift, except in case of emergency;

(e) When leaving the operating position and when work is stopped the operator of the mobile elevating work platform shall:

(i) Put the Working Platform (JC227) in the lowest position;

(ii) Stop the prime engine/motor; and

(iii) Apply the parking brake securely and ensure the equipment is securely parked.

(f) Stop work at a height of 2 m or more in case of adverse weather in accordance with JSSS 2.7 [*Adverse Weather Requirements*].

(5) Measures of moving mobile elevating work platform

(a) Mobile elevating work platform shall not be moved when the boom is elevated in a working position with workers in the basket, except for equipment which is specifically designed for this type of operation; and

(b) Before moving the mobile elevating work platform for travel, the boom(s) shall be inspected to see that it is properly cradled and outriggers are in stowed position.

(6) Inspection and maintenance of mobile elevating work platform

(a) Carry out inspection in accordance with JSSS 4.2.1 [*Requirements Generally*]; and

(b) Carry out maintenance, repair and installation/removal of the Working Platform (JC227) in accordance with JSSS 4.2 [*Inspection, Maintenance and Repair*] and JSSS 4.3 [*Safety Requirements*].

(7) Prohibition of use for other purposes

Mobile elevating work platforms shall not be used for any purpose other than the intended original purpose and for example shall never be used for hoisting loads.

JC227: modified.

6.6 ELEVATED ACCESS STRUCTURES

6.6.1 General

This Section includes safety measures relating to Elevated Access Structures which act as act as temporary access, parking, working and/or storage areas which also accommodate Contractor's Equipment, Goods and temporary facilities as necessary to permit the construction operations to be performed from these structures on the underlying or adjacent working area(s) within the Site.

6.6.2 Design and Management Generally

(1) The design, management, provision, safe use and safe removal of Elevated Access Structures shall comply with the requirements of JSSS 6.1.1 [*Design and Provision of Temporary Works Generally*].

(2) For related JSSS requirements, refer to the following and other related parts of JSSS including:

(a) JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*]; and

(b) JSSS 1.37 [*Design and Management of Temporary Works*].

(3) Erection and Removal of Elevated Access Structures

The Contractor shall:

(a) ~~Designate any working areas where any Elevated Access Structures are being erected, altered or removed as Dangerous Areas and e~~ Enclose (JC228) the working area where possible with temporary fences or barriers, prevent entry of any unauthorised personnel or prevent vessels from entering in the case of offshore or marine works and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry - Dangerous Work];*

(b) Use of Measures to prevent Workers, Vehicles, Contractor's Equipment and Goods from falling;

The Contractor shall design and provide suitable measures to prevent workers falling including for example handrails specified in JSSS 2.5.5 [*Handrails*] to the perimeter of Elevated Access Structures ~~to prevent workers from falling~~. (JC228)

The Contractor shall design and provide suitable measures to the perimeter of Elevated Access Structures prevent Vehicles, Contractor's Equipment and Goods falling including for example steel edge barriers and kerbs.

All edge barriers and kerbs shall be painted in black and yellow bands to show them as a hazard.

(c) Use of Measures to prevent collision with ~~Marine V~~ vessels; (JC228)

For offshore work, the Contractor shall provide all necessary warning signs, audible alarms, beacons and lighting and serve all notices to the marine or other relevant authorities as necessary to ensure that all shipping, boats and other vessels are aware of changes to navigation due to the presence of any Elevated Access Structures and that all risk of collision is avoided.

JC228: deleted.

6.6.3 Further Safety Requirements

The Contractor shall take all necessary measures to ensure the safe provision, use and removal of Elevated Access Structures, including but not restricted to the following:

(1) Provide warning notices clearly showing the maximum safe working load in clearly

visible locations.

(2) ~~Ensure that the Contractor, together with any other parties considered collectively, NEVER exceed the maximum safe working load.~~ Always respect the maximum safe working load, taking account of all the persons/personnel, vehicles, Goods, etc. on the Elevated Access Structures.~~(JC229)~~

(3) Provide any further signs containing user information or other mandatory usage requirements such as speed limits and markings all as necessary to demarcate roadways and walkways, working, storage, parking and other areas.

(4) Designate all work to and on any Elevated Access Structures and during use, as Dangerous Work and take all further measures that are required by JSSS 2.3 [*Prohibition of Entry - Dangerous Work*].

(5) Provide Walkways (JC229) in accordance with JSSS 6.4 [*Walkways, Ladders and Stepladders*].

(6) Provide adequate lighting to ensure the safety of Contractor's Equipment, equipment of other parties, vehicles and persons in transit or whilst working.

(7) (for offshore work) Provide rescue and lifesaving equipment to be used in the event that any persons fall into the water, including a rescue ~~tender~~ boat (JC229) and life belts or the like.

JC229: modified.

(8) Provide PFAS or PFRS to workers where appropriate including those engaged in the construction and removal of the Elevated Access Structures.

(9) Prevent any accident or collision by ensuring that all Contractor's Personnel that may be working on Elevated Access Structures and any Employer's personnel and other persons that may be present on such structures are fully informed about the work that may be in progress from time to time, including transportation and delivery of Goods and of the measures and any precautions that must be complied with.

(10) Provide relevant training in accordance with JSSS 1.20 [*Safety Induction Training*] to ensure the safety of all persons before they commence work on the Elevated Access Structures.

(11) ~~Ensure the ongoing compliance with safe working practices through the regular meetings required by JSSS 1.15 [*Contractor's Safety Management Activities*].~~(JC230)

JC230:deleted.

6.6.4 Inspection and Maintenance

Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the Contractor shall comply with the following:

(1) Every Elevated Access Structure shall be thoroughly examined by the HSO:

(a) Before it is brought into use;

(b) After any substantial alteration or extension;

(c) At least once in every 7 days; and

(d) Whenever it has been exposed to adverse climatic conditions, heavy seas, earthquake or other factors which may have affected its safety.

(2) A written record of the examination and regular inspections and details of any repair measures shall be prepared by the HSO.

(3) The examination and regular inspections shall include:

(a) Check if the Elevated Access Structure is provided and used in accordance with the Method Statement, Safety Plan and its design;

(b) Check items include:

(i) The structural condition of the Elevated Access Structure and of any deterioration, defect, damage or settlement;

(ii) ~~Fall prevention and all other s~~ Safety ~~requirements and~~ facilities including that for fall prevention (JC231) are intact and fully operational; and

JC231: modified.

(iii) All other requirements of this Section are still being complied with.

(4) The Contractor shall carry out all necessary remedial and repair work necessary to rectify any deterioration, defect or damage and shall if necessary stop the use of the Elevated Access Structure until such work has been properly completed, re-inspected and re-certified as "Safe for Use" by the HSO.

6.7 TEMPORARY ELECTRICAL INSTALLATIONS

6.7.1 General

(1) This Section contains safety requirements for the provision, use, relocation, repair and removal of temporary electrical power and lighting installations at the Site.

(2) Although the work in this Section is temporary, it shall be particularly noted that temporary electrical installations shall be designed, installed, inspected, tested, altered and removed by Contractor's Personnel that are qualified electricians, trained and certified for such operations in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*] and that follow strict procedures prepared by the Contractor and specified in the Method Statement and Safety Plan.

(3) The Contractor shall take precautions against the risk of death or injury from electricity during construction work. In particular, when executing refurbishment work in existing buildings where greater risk exists, the Contractor shall locate and indicate the types, positions and routes of all underground and concealed services with clearly visibly markings on ground, floor, wall and ceiling surfaces, and take all actions necessary to ensure construction safety in compliance with JSSS 3.1.2 [*Preparation and Work Planning*].

(4) The temporary electrical installations and all equipment used shall be safe, regularly inspected and properly maintained.

(5) Temporary electrical installations shall be removed immediately upon completion of the work for which they are used.

6.7.2 Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for Temporary Electrical Installations complying with the technical requirements specified in OSHA PART 1926-Safety and Health Regulations for Construction, Subpart K-Electrical; 1926.405 Wiring Methods, Components and Equipment for General Use.

6.7.3 General Safety Requirements

The Contractor shall avoid accidents to workers engaged on electrical works and also those workers who are not electricians but who are carrying out other works, by taking appropriate measures including the following:

(1) Understanding the system

(a) The Contractor shall ensure that Contractor's Personnel responsible for planning, managing or performing any part of the Works fully understand the danger in relation to electrical system on the (JC232) Site or inside any existing building where any work is to be carried out, to ensure that the integrity of the electrical system is not compromised and all workers remain safe; and

(b) The Contractor shall ensure that relevant parts of existing electrical systems are isolated if the execution of any part of the Works may disturb or damage the existing electrical system and expose persons to electrical danger.

(2) Portable electrical equipment

(a) The Contractor shall ensure that tools, plugs and cables designed for domestic use are not used for construction works unless authorised by the HSO;

(b) The Contractor shall use cordless tools or other tools suitable for the Site conditions;

(c) Where cordless tools are not used, as a first preference the Contractor shall use cord and plug connected tools with a maximum voltage to ground not exceeding 50V/55V; and

NK18: NK is studying (c) above (d) and (3) below with the NK electrical experts, so we will inform you of study results.
We found OSHA specifies ground fault circuit interrupters in § 1926.404 Wiring design and protection, (b) Branch circuits—(1) Ground-fault protection—

(d) Where cordless tools or cord and plug connected tools with power supplies as described in (c) above are not available then, subject to authorisation by the HSO, the Contractor shall select cord and plug connected tools which are operated as stipulated below:

Under any of the following conditions, exposed non-current carrying metal parts of cord and plug connected tools shall be grounded:

(i) If in a hazardous (classified) location stipulated in OSHA §1926.407 Hazardous (classified) locations;

(ii) If operated at over 150V to ground, except for guarded motors and metal frames of electrically heated appliances if the appliance frames are permanently and effectively insulated from ground;

(iii) If the equipment is one of the types listed below:

- Hand held motor-operated tools;
- Cord and plug connected equipment used in damp or wet locations or by workers standing on the ground or on metal floors or working inside of metal tanks or boilers;
- Portable and mobile X-ray and associated equipment;
- Tools likely to be used in wet and/or conductive locations; and
- Portable hand lamps.

(3) Residual current (trip) devices

NK19: ground fault circuit interrupters is same as RCD.

(a) Ensure that equipment, tools, leads, wires or cables are free of defect or damage, in particular when mains supply is used; (JC232)

(b) Use ~~residual current (trip) devices (~~RCD~~)~~ (JC232) to detect some faults in the electrical system and rapidly switch off the supply; and

(c) RCDs shall be properly installed and enclosed; properly checked ~~daily~~; treated with care; kept free of moisture and dirt; and protected against vibration and mechanical damage. (JC232)

JC232: modified.

(4) Lighting systems

Protect cabling and bulbs against breakage. If a bulb breaks, the exposed filament may present a hazard. Have a system for checking bulbs regularly to maintain electrical safety and to keep the site well lit.

(5) Temporary electrical systems shall not be used in excess of intended loads or rated capacity whichever is less.

(6) Temporary electrical systems shall not be used for any purpose other than the intended original purpose.

(7) Regularly inspect power tools and take them out of service if they are damaged. Tools should be serviced by qualified electricians; makeshift repairs are prohibited.

6.7.4 Method statement for Temporary Electrical Installations

The Method Statement for temporary electrical installations (required by the Contract and JSSS 1.9 [*Contractor's Method Statements*] shall make reference to the Laws ~~and regulations~~ (JC233) of the Country and the relevant authority which supplies power to the Contractor in relation with relevant temporary electrical installations and shall show:

JC233: deleted.

(1) Required Standards and voltages of electric wires and cables.

(2) Protective work for electric wires and cables.

(3) Electric diagram.

6.7.5 Responsible Personnel

(1) The Contractor shall post the name and contact information for the person in charge of managing and operating the temporary electrical installation.

(2) All other persons shall be prohibited from operating repairing or interfering with the temporary electrical installation unless otherwise instructed or approved by the HSO or person in change.

6.7.6 Inspection, Maintenance and Repair

The Contractor shall inspect the temporary electric facilities and perform all requisite maintenance, replacement and repair to ensure the continued and safe operation including the following:

(1) Daily inspection

(a) Prepare a daily inspection checklist of the temporary electric installations including the condition of associated buildings, enclosures, fences and the like;

(b) Inspect daily; and

(c) Record the inspection results.

(2) Periodical inspection

(a) Prepare periodical (weekly and monthly) inspection checklist including measurement of insulation resistance values of temporary electric installations and the operating status of protective devices against overcurrent, grounding fault, etc.;

(b) Inspect periodically; and

(c) Record the inspection results.

(3) Maintenance and repair

(a) As a result of inspection, carry any maintenance, repair or replacement if and as necessary;

(b) Stop operation of the temporary electric installations or affected parts thereof and prevent any further operation until maintenance, repair or replacement is completed; and

(c) Reinspect, the temporary electric installations or parts thereof, and after the HSO has declared same as "Safe for Use", operation can then re-commence.

6.7.7 Safety Measures during the Work

The Contractor shall take the following safety measures when installing, moving, removing, repairing temporary electric facilities.

(1) Cabling/Wiring

(a) Carry out cabling/wiring work so that safety distances between cabling/wiring and any other cabling/wiring, posts, gantries, other structures, buildings, enclosures Contractor's Equipment, vehicles and persons are maintained;

(b) If appropriate separation distances cannot be maintained, enclose cabling/wiring in insulated ducts, conduit or trunking;

(c) Locate cabling/wiring where it does not obstruct other works; and

(d) Always enclose cabling/wiring in insulated ducts, conduit or trunking in working areas or Operational Areas to avoid any risk of contact, damage or injury.

(2) Switchgear, Panels and Switches

(a) Enclose switchgear, panels and switches in waterproof and lockable metal enclosures to suit the environmental conditions, all of which shall be grounded; and

(b) Fuses and circuit breakers shall be suitable for their use and load capacity.

(3) Power Receiving Equipment and Transformers

(a) Power receiving equipment, transformers and the like, shall be located in securely fenced or enclosed and locked compounds, enclosures or buildings from which entry by unauthorised persons shall be prohibited;

(b) Any work in such areas shall be designated as Dangerous Work and the provisions of JSSS 2.1.5 [*Further Requirements for Dangerous Work*] shall be applied; and

(c) All such places shall be clearly indicated as dangerous no entry areas with clear and obvious signage.

(4) Grounding (earthing)

(a) All temporary electric installations shall be grounded for each part to prevent the risk of electric shock due to electrical leakage; and

(b) Grounding electrodes shall be highly conductive such as copper ~~or steel~~. (JC234)

(5) Relocation and Repair Work

(a) Relocation and repair work to or any work (JC234) in the vicinity of temporary electrical installations shall only be performed after the power supply has been turned off, isolation has been confirmed, confirmation that temporary protective casings have been installed over existing cables and no electricity is measured by electricity detection;

(b) When re-energising temporary electric installations during or after any relocation or repair work, the Contractor shall ascertain in advance that there will be no ~~is no risk of~~ electric shock to any persons engaged ~~on or in the vicinity of~~ in the relocation or repair work of temporary electrical installations or any work nearby; and (JC234)

JC234: deleted and modified.

(c) When installation, relocation or repair work of temporary electric installations is completed, the facilities shall be operated only after testing and inspection of the installation by the HSO and after the HSO has declared same as "Safe for Use".

6.8 ELECTRIC AND GAS WELDING AND CUTTING

6.8.1 General

(1) This Section contains safety requirements for electric and gas, welding and cutting.

(2) Electric and Gas welding and cutting work shall be designated as Dangerous Work and the provisions of JSSS 2.1.5 [*Further Requirements for Dangerous Work*] shall be applied.

(3) Electric and Gas welding and cutting work shall only be performed, inspected and tested by Contractor's Personnel that are qualified welders, trained and certified for such operations in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*] and that follow strict procedures prepared by the Contractor and specified in the Method Statement and Safety Plan.

6.8.2 Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for Electric and Gas Welding and Cutting complying with the technical requirements specified in the following standards:

(1) OSHA PART 1926-Safety and Health Regulations for Construction, Subpart J - Welding and Cutting, 1926.351 Arc welding and cutting.

(2) OSHA PART 1926-Safety and Health Regulations for Construction, Subpart J- Welding and Cutting, 1926.351 Gas welding and cutting.

6.8.3 Electric Welding and Cutting

The Contractor shall take the following measures for the electric welding and cutting:

(1) Check measures before operation:

(a) Automatic voltage reduction device for reducing no load voltage to prevent the shock hazard, is fitted and is functioning properly;

(b) Frame of welding machine is properly grounded; (JC235)

(c) The ground resistance shall be sufficiently low for the proper function of RCD. (JC235)

(d) Grounding conductor is installed properly and working;

(e) There is no damage to welding cables;

(f) There is no damage to electrode holder, insulation of ground clamp or cable connections; and

(g) Carry out all such further checks that are required by the manufacturer's official maintenance and repair manual.

If any items are found to be missing or defective, the Contractor shall prohibit use until it has been repaired or replaced and the equipment has been inspected, tested and certified as "Safe for Use" by HSO, before it can be used.

(2) Measures to be adopted during operation:

(a) Prevent ~~the occurrence of~~ (JC235) stray currents by securely fixing the ground cable with a ground clamp to a suitable ground, close to the work location;

JC235: added and deleted.

(b) Use cables of the correct type and size and never use alternatives such as tools or reinforcing bars;

(c) When not working, remove electrode from holder and turn off the welding machine;

(d) Weld only in suitable environment and climatic conditions. Stop working outdoors during rainfall and take measures to prevent the welding machine, cables and accessories from getting wet;

(e) If any worker receives an electric shock, the Contractor shall stop the work immediately, identify the cause, prohibit use of the equipment until it has been repaired or replaced and the equipment has been inspected, tested and certified as "Safe for Use" by HSO, before it can be used;

(f) Ensure that workers wear appropriate PPE including personal face protectors for welding and protective gloves as specified in JSSS 2.9 [*PPE and First Aid*]; and

(g) Instruct all workers not to look directly at the electric arc with their naked eyes.

(3) Periodical inspection of welding machines and welding equipment:

(a) Electric welding and cutting equipment shall be inspected and tested periodically in accordance with JSSS 4.2 [*Inspection, Maintenance and Repair*] and JSSS 4.3 [*Safety Requirements*] and

(b) The voltage reduction device shall be regularly inspected and tested at least once every six months.

6.8.4 Gas Welding and Cutting

The Contractor shall take the following measures for gas welding and cutting:

(1) Check measures before operation:

(a) Flashback arrestor to stop flame back-up into the equipment or gas supply line is installed;

(b) There is no damage to gas cylinders, regulators, flashback arrestor, hose bands, hoses, blow pipes, tip nozzles, and other accessories and equipment;

(c) Gas cylinders, regulators and caps and other relevant accessories and equipment have been inspected periodically and certified by HSO as "Safe for Use"; and

(h) Carry out all such further checks that are required by the manufacturer's official maintenance and repair manual.

If any items are found to be missing or defective, the Contractor shall prohibit use until it has been repaired or replaced and the equipment has been inspected, tested and certified as "Safe for Use" by HSO, before it can be used.

(2) Handling of gas welding and cutting equipment

~~Welders engaged in gas cutting and welding shall be aware of the following requirements:~~ (JC236)

(a) Gas hoses and gas weld sets, shall not be damaged or worn ~~and have no risk of~~ to prevent gas leakage; (JC236)

(b) Gas weld sets shall be turned off when not in use and shall not be left lying around;

(c) Gas pressure regulators shall not be operated during cutting or welding operation;

(d) Connections between cylinders, gas hoses and gas weld sets shall be securely tightened with appropriate connectors;

(e) When tip nozzle overheats, flashback is likely to occur, therefore interrupt continuous working, from time to time and cool the nozzle by submerging in water whilst discharging oxygen at low pressure; and

(f) When finishing or interrupting work, completely close the container valves and vent gas in regulators.

(3) Handling of gas cylinders

Workers ~~and workers~~ (JC236) shall be trained to handle gas cylinders so that they are aware of the following requirements:

(a) Not to place gas cylinders:

(i) Where there is insufficient ventilation;

(ii) Near to fires, flames, heat sources, electrical sparks or grinding sparks; and

(iii) Near to Dangerous Goods or Hazardous Substances or near to Hazardous Areas. (NK: underlines shall be removed.)

(b) Handle gas cylinders with care and do not drop, throw or mishandle;

(c) Keep cylinders cool by shading and do not expose to direct sunlight;

(d) ~~Position~~ Keep cylinders standing during storage and use ~~so that there is no risk of falling~~; (JC236)

JC236: deleted and modified.

(e) Seal cylinders when transporting;

(f) Place compressed gas cylinders upright at all times except while cylinders are actually being hoisted or carried;

(g) Not to place gas cylinders in the vicinity of lightning conductors or grounding rods for electrical equipment;

(h) Mark all gas cylinders as either full or empty and separate them from each other in storage and during use; and

(i) When there is a risk of freezing, do not place gas cylinders in wet or humid places. When valves of cylinder or regulating valves freeze, thaw them out with hot water, do not flame or direct fire.

(4) Safety measures for gas welding and cutting work:

(a) Ensure that all internal and external work areas are fully ventilated;

(b) When checking for gas leakage from the gas welding or cutting equipment, use a liquid detergent or similar, never use flames or fire;

(c) Provide adequate fire extinguishing equipment near the working place, always maintained and certified, suitably labelled, available and positioned so that it can be used immediately when necessary;

(d) Remove oil and dust adhering to the valve of gas cylinders;

(e) Ignition and digestion shall be accomplished only with oxygen supply valve closed;

(f) Ensure that workers wear appropriate PPE including personal face protectors for welding and protective gloves as specified in JSSS 2.9 [*PPE and First Aid*]; and

(g) Instruct all workers not to look directly at the weld with their naked eyes.

(5) Periodical inspection of gas welding and cutting equipment.

Gas welding and cutting equipment shall be inspected and tested periodically in accordance with JSSS 4.2 [*Inspection, Maintenance and Repair*] and JSSS 4.3 [*Safety Requirements*].

6.8.5 Fire Prevention

The Contractor shall take all necessary measures to prevent fires caused by welding and cutting

works, including:

(1) When welding or cutting work is carried out on/in containers previously filled with Dangerous Goods or Hazardous Material, the containers shall be thoroughly cleaned so that they are completely free from such Dangerous Goods or Hazardous Material before starting work.

(2) When welding or cutting work is carried out at a place where there is a risk of causing fire either to adjacent buildings or to Contractor's Equipment, Goods, debris, waste or other materials, then fire prevention measures shall be adopted. This may include moving all such Contractor's Equipment, Goods, debris, waste or other materials, from the working area and taking other protective measures.

(3) Welding or cutting work shall not be conducted near Dangerous Goods or Hazardous Substances or in or near to Hazardous Areas.

(4) A sufficient number of fire extinguishers of appropriate types shall be provided, near the working place, always maintained and certified, suitably labelled, available and positioned so that they can be used immediately when necessary.

(5) Spotter(s) shall be provided at areas where welding or cutting work is taking place when there is risk of fire by the heat transmitted or sparks of welding or cutting, getting into walls, floors, ceilings and the like.

(6) When welding, cutting, or heating work is performed on walls, floors, and ceilings, since direct penetration of sparks or heat transfer may introduce a fire hazard to an adjacent area, the same precautions mentioned in this JSSS 6.8.5 shall be taken on the opposite side as are taken on the side on which the welding work is being performed.

CHAPTER 7: EXCAVATION WORKS

7.1 GENERAL

7.1.1 Scope

(1) This Chapter specifies the safety requirements for excavation works which include:

(a) Open-cut and all other types of surface excavation;

(b) Pits, trenches, basements and all other types of structural excavation;

(c) Excavation using all methods such as manual excavation and machine excavation;

(d) Excavation by Blasting (hereinafter referred to as “Blasting Works”);

(e) All associated embankment filling, backfilling and disposal; and

(f) Earthwork Support.

and which are hereinafter collectively referred to as “Excavation Works”.

(2) ~~Excavation in tunnelling is not included.~~ (JC237)

JC237: deleted.

(3) General requirements for example for Contractor’s Equipment, Temporary Works and other related works all which apply to the work in this Chapter, are included in other Chapters of JSSS.

Additional particular requirements are contained in this Chapter.

7.1.2 Monitoring of Excavation Works and Surroundings

(1) The Contractor shall monitor the Excavation Works and surroundings, to demonstrate that the Excavation Works are performing safely, to the designed limits and for the intended purpose.

(2) For more details, refer to JSSS 2.1.7 [*Monitoring and Records*].

7.2 PARTICULAR SAFETY MEASURES

7.2.1 General

(1) The Contractor shall plan all Excavation Works so that they can be executed in a safe and methodical manner.

(2) Unless otherwise specified in the Particular Safety Specification, the Contractor shall be responsible for choosing manual or machine excavation, selecting types of Contractor’s Equipment, types of Temporary Works, Earthwork Support, spoil removal, storage and handling, controlling ground and surface water, forming embankments and cuttings and the like~~, in conformity with GC 4.10.~~ (JC238)

JC238: deleted.

(3) Sloping sides and benching to sides of excavations shall comply with the technical requirements of OSHA Subpart P—Excavations §1926.652 Requirements for protective systems, (b) only, dependant on the dimensional constraints of the Site and the nature of the soil, hydraulic and geological conditions.

(4) The Contractor shall be responsible for preserving the structural integrity (JC239) of all excavated sides ~~and excavations~~ (JC240) and shall provide whatever Earthwork Support may be necessary to achieve this, in accordance with the requirements of JSSS 6.2 [*Earthwork Support*].

JC239:オープン掘削を前提としているので、掘削した側面について言及するということだと思いますが、その際 structural integrity という言い方でよいものでしょうか。ご検討ください。

This sub-clause specifies excavated side surfaces in open excavation. Please review whether the use of

"structural integrity" is proper.
NK: To MD, Does "structural integrity" mean the stability of excavated slopes? Please kindly review the wording.
JC240: modified.

(5) The Contractor shall execute all Excavation Works and associated filling, backfilling and Earthwork Support without weakening any ground or causing any damage to ~~any~~ Other Properties ~~buildings, structures and other properties, paved areas, roads, footpaths, fences, railways, waterways, drainage, utilities or any other property on the Site or outside the Site (collectively referred to in this Chapter as "other properties")~~.~~(JC241)~~

The Contractor shall also ensure the safety of all persons, whilst they are working in, under or adjacent to any excavation on or outside the Site.

The Contractor shall take all necessary measures to prevent the occurrence of any such weakening or damage ~~to by~~ Other Properties and obtain the prior consent of the Engineer to such measures before commencing relevant parts of the Excavation Works.~~(JC241)~~

(6) If loose rock, boulders, trees and the like, are positioned above working areas and where there is any risk that these may pose a danger to workers,~~ unless otherwise instructed by the Engineer,~~ the ~~HSO~~ Contractor ~~(JC242)~~ shall prohibit workers from entering the working areas and~~ issue appropriate instructions including for example to~~ take following measures as appropriate:~~(JC241)~~

(a) Provide protective overhead safety barriers or safety nets;

(b) Carefully remove loose rocks; and

(c) Provide (or improve existing) Earthwork Support to unstable areas.

JC241: deleted and modified.
JC242: revised.
NK: HSO shall be left as it is. To MD, please review this.

(5) Up to here, JICA comments and NK comments are inserted by NK on 2020/7/31.

7.2.2 Safety Measures before Commencing Excavation Works

(1) The HSO shall inspect the Excavation Works area and surrounding areas before starting work each day and after adverse climatic conditions or earthquake as described in JSSS: 2.7 [*Adverse Weather Requirements*]. The inspection shall include the following areas and items:

(a) Potentially unsafe areas where there may be any risk of landslide;

(b) Loose rock or boulders which may be at risk of falling;

(c) Cracks in the Excavation Works area and the surrounding area;

(d) Changes in ground water level, surface or any spring water; and

(e) Deleterious effect due to freezing conditions.

(2) As a consequence of such inspections if the HSO ~~may~~ identifies any outstanding risks, the HSO shall prohibit the continuation of any affected work, take necessary corrective measures and make any necessary amendment to the Safety Plan and instruct all Contractor's Personnel associated with such affected work of any revised safety measures before work is allowed to commence and continue in order to ensure their continued safety. (JC243)

JC243: added.

(3) Install facilities such as stairs and ramps as means of access or egress from the excavation site in accordance with JSSS 6.4.3 [*Vertical Access*].

(4) Provide support or protection for the underground services appropriately in accordance with JSSS Chapter 3 [*Existing Underground, Concealed and Overhead Services*], and take measures, according to the situation, such as indicating clearly the location and precautions of the underground service and providing protective fences for the services.

(5) Prevent workers and construction equipment/transport vehicles from falling at the excavation site, in accordance with JSSS 2.3 [*Prohibition of Entry-Dangerous Work*], install all necessary entry prevention facilities including fences, temporary enclosures, warning flags, “no entry” signs and the like and placing Spotters.

(6) Take the following measures when there is a risk of danger to third parties, workers, construction equipment, etc. by the fall of excavated soil/rock into the lower parts (bottom) of the excavation site;
   (a) Identify dangerous locations, install entry prevention facilities such as fences, temporary enclosures, warning signs, etc. in accordance with JSSS 2.3 [Prohibition of Entry]; and
   (b) Install protective fences that can catch falling rocks, etc.

(7) Preventive measures against falling rocks
   (a) To protect workers from the dangers of falling of loose rocks and soils from the excavated surface, remove the loose rocks, etc. and take appropriate protective measures
   (b) When there is a risk of falling of loose rocks/soils due to the excavation, take measures such as provision of earth retaining and protective net beforehand, and prohibiting workers from entering in the excavation site. (JC244)

JC244: added. (Please revive the previous provisions which were deleted last time.)

7.2.3 Safety Measures during Excavation Works

During the Excavation Works, the Contractor shall:

(1) Not place ~~excavated~~ spoil, filling or Contractor’s Equipment near the vertical edge of excavated surfaces.

(2) Stop the Excavation Works where a sign of ground collapse is ~~possible~~ identified during excavation, evacuate all Contractor’s Personnel, implement all necessary safety measures, prohibit Contractor’s Personnel from recommencing work until all safety measures have been taken.

(3) Backfill any temporary excavation area as soon as possible after the relevant work is completed.

~~(4) Backfill and compact excavated areas that require such backfill as soon as possible after the Permanent Works are completed.~~

(5) For places where open Excavation Works are performed, maintain the necessary illuminance to perform the work safely. (JC245)

JC245: deleted and added.

7.3 MANUAL EXCAVATION WORKS

7.3.1 General

During manual Excavation Works, the Contractor shall:

(1) Not undermine any excavation under and beyond the vertical cutting face. (JC246)

JC246: added.

(2) Not excavate under existing foundations.

(3) Maintain sufficient distance between workers.

(4) When breaking or removing loose rock, pay attention to the stability of the rock and the direction of its fall.

(5) When using a lever for removing rock, select equipment that has appropriate length and strength for the work.

7.4 MECHANICAL EXCAVATION WORK

Refer to JSSS Chapter 4 [*Contractor's Equipment*].

7.5 TRENCHES, PITS AND OTHER TYPES OF STRUCTURAL EXCAVATION

7.5.1 General

The Contractor shall provide Earthwork Support in accordance with JSSS Section 6.2 [*Earthwork Support*] to prevent any danger to workers due to the collapse of excavated surfaces during the excavation of trenches, pits and other types of structural excavation.

7.5.2 Safety Measures during Structural Excavation

(1) Materials and equipment to be used for Earthwork Support shall be appropriate for the width and depth of the excavation and free from damage or defects that might impair their proper function.

(2) Workers shall not be allowed to enter any excavation until Earthwork Support is installed prior to the work.

(3) Excavation to a level greater than 60cm below the planned bottom level of support when ~~of~~ the Earthwork Support itself is not yet installed shall not be allowed. (JC247)

JC247: added.

(4) If temporary removal of individual members of the Earthwork Support is necessary, safety measures shall be taken to ensure the safety of workers, such as installing temporary members to hold the loads imposed on the system.

(5) When removing Earthwork Support, the Contractor shall not allow anyone other than the workers engaged in the removal work to enter the area and the vicinity.

(6) The Contractor shall perform backfilling of any excavation in parallel with the removal of the Earthwork Support.

7.6 BLASTING WORKS

7.6.1 Scope

(1) This Section specifies safety measures for Blasting Works generally for the removal of rock that cannot be undertaken using conventional excavation techniques.

(2) Blasting Works for tunnelling is not included in the scope of this Chapter. ~~Any such work shall be performed in accordance with the Particular Safety Specification.~~ (JC248)

JC248: deleted.

7.6.2 General Blasting Requirements

(1) Blasting shall only be permitted to be performed by the Contractor:

(a) When it is safe to do so and when there is no reasonably identifiable risk of injury or damage being caused to persons or property within or outside the Site;

(b) Where it is not specifically ~~allowed or required~~ prohibited by the Particular Safety Specification; and

(c) ~~During the execution of the Works after~~ When the Contractor has received the

Engineer's approval or instruction. (JC249)

JC249: modified.

(2) Blasting when approved, shall only be permitted at times which have been predetermined and agreed with the Engineer and any relevant authority.

(3) The Blasting Works plan shall be described in the relevant Method Statement.

(4) This Section applies particularly where there may be any risk of injury or damage to persons and property from flying debris within or outside the Site.

7.6.3 Blasting Noise (JC250)

JC250: 音量のレベルと、サイト内で規制をかけるということについては、参照文献を確認させてください。dB の表現（dBA とするか否か）についてもそれに合わせて確認願います。

Please submit reference documents for JIICA's confirmation. Please check which of dB or dBA shall be specified.

NK: Please refer to the explanation separately attached..

Noise levels, measured in areas close to the Exclusion Zone and in areas accessible to other workers or the public shall not exceed a sound pressure level of 85 dB and/or a peak sound level of 110 dB.

Noise levels measured at the boundary of the Site shall not exceed a sound pressure level of 85 dB and/or a peak sound level of 110 dB.

7.6.4 Definitions (JC251)

JC251: 他章では、Scope, Definitions, Compliance Standards の順で章の冒頭に記載されているので、7.6.4 と 7.6.5 を同様の順番にして章の冒頭に移してください。

In other Chapter, the order of provisions is Scope, Definitions, Compliance Standards. Please put 7.6.4 and 7.6.5 after 7.6.1.

Definitions of terms for the purpose of this Chapter are as follows.

(1) "**Blasting**" means blowing-up or breaking apart solid rock with the use of Explosives.

(2) "**Explosives**" means any substance or mixture of substances that is manufactured to produce an explosive effect and which term includes any explosion explosive, Blasting agent and Blasting supplies such as detonators, cords and detonating equipment.

(3) "Blasting **Exclusion Zone**" (JC251) means an area from which all unauthorised Contractor's Personnel, unauthorised Employer's Personnel and any other unauthorised persons or the general public are prohibited to enter due to the risk of their being affected by the Blasting Works. Unauthorised personnel in this context shall have the same meaning as that stated in ~~Section 2.3 [*Prohibition of Entry – Dangerous Work*] Clause~~ JSSS 2.3.1 (3).

JC252: 2.6.1 (3)でも一般用語で別の意味で使用しているので、ここは Blasting Exclusion Zone とかにした方が良いように思います。

"Exclusion Zone" is defined for other meaning in 2.6.1 (3). It seems this should be "Blasting Exclusion Zone"

NK: We agree to add it. To MD, how do you think?

7.6.5 Compliance Standards (JC251: ditto)

(1) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for Blasting Works complying with the technical requirements specified in BS 5607: Code of Practice for the Safe Use of Explosives in the Construction Industry.

(2) The Contractor shall obtain the necessary permits, licenses or approvals for Blasting ~~work~~ Works (JC252) and the handling and storage of Explosives associated therewith.

The Employer, at the request of the Contractor, shall provide such reasonable assistance to allow the Contractor to obtain properly such permits, licenses or approvals.

7.6.6 Personnel for Blasting Works

(1) Further to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*], the Contractor shall assign the following personnel for Blasting Works:

(a) Explosives engineer; and

(b) Shotfirer(s).

(2) Responsibilities and requirement of personnel for Blasting Works

(a) The Explosives engineer shall plan the Blasting Works, lead the Blasting Works at the Site and perform the safety management of the Blasting Works; and

(b) Shotfirer(s) shall perform safe ~~keeping~~ handling, (JC252) transportation and storage of Explosives, and perform Blasting Works and site safety management.

(3) Safety education and guidance

Further to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*], the Contractor shall ensure that the Explosives engineer and shotfirer(s) have sufficient knowledge of and are able to comply with the following:

(a) Nature of hazards associated with Blasting;

(b) Unsafe conditions and conduct in performing Blasting Works;

(c) Procedures for Blasting Works;

(d) Evacuation and return procedures for any evacuated workers and personnel;

(e) Safety measures when misfiring of Explosives occurs; and

(f) Emergency Response *(actions).* (JC252)

JC252: modified.

7.6.7 Blasting Safety Plan

The Contractor shall prepare a Blasting Safety Plan describing all required safety measures for Blasting Works in addition to the items prescribed in JSSS 1.7 [*Contractor's Safety Plans*] and including the following:

(1) Risk analysis and countermeasures.

(2) Safety measures for transportation, safekeeping, use and disposal of Explosives.

(3) Safety measures for Contractor's Personnel, Employer's Personnel and any other persons, the general public, neighbouring residents and building owners on or adjacent to the Site and who may be affected by the Blasting Works (hereinafter collectively referred to as "persons affected by the Blasting Works" in this Section).

(4) Determination of Exclusion Zone.

(5) Identification of affected areas, buildings, structures and property.

(6) Environmental and health compliance requirements including vibration, noise, fire, and the like, required by Laws of the Country (JC253) and the Contract.

JC253: Is the Law of the Country correct?

(7) Environmental monitoring plan and methods to record the impact of Blasting on affected buildings, structures and property.

(8) Trial Blasting.

(9) Identification of the Explosives engineer and shotfirers to distinguish from other workers.

(10) Placement of Spotters.

(11) Method of notification of the start date and time of Blasting ~~work~~ Works (JC254) and the serving of notice immediately before commencement of Blasting Works to other persons affected by the Blasting Works.

(12) Evacuation method of all personnel from the Exclusion Zone before Blasting.

(13) Warning system at the time of Blasting.

(14) Procedures and methods for dealing with misfired Explosives (The plan for the treatment procedures for misfired Explosives shall be prepared by reference to BS 5607: Clause 10.5 Misfires.

(15) List of legal and administrative records.

7.6.8 Risk Prevention of Workers and Neighbouring Residents

(1) Notice of Blasting

The Contractor shall notify all persons affected by the Blasting Works. of the planned schedule and start dates and times for Blasting Works. Such information shall be updated as necessary, immediately before the Blasting Works commence.

(2) Risk Prevention Measures

The Contractor shall take all necessary measures to prevent any injury or damage to all persons affected by the Blasting Works, including the following:

(a) Prohibition of overcharging with Explosives more than that specified in the Method Statement prepared based upon the trial Blasting;

(b) Prevention of scattering of flying rock and other debris;

(c) Prevention of collapse of surrounding rocks or ground areas;

(d) Demarcate the Exclusion Zone for Blasting Works and take necessary measures to prohibit any unauthorized persons ~~who may be affected by the Blasting works~~ (JC254) from entering the Exclusion Zone by a system of signs, signals and Spotters in accordance with BS 5607: Clause 7.4.2 [Blast warning procedures] including the following:

(i) Provide audible warning sirens to warn of impending, current and completed Blasting operations; and

(ii) Place bulletin boards showing the Blasting time, siren code and other precautions at the boundary of the Dangerous Work area.

(e) Establish evacuation requirements, routes and assembly areas and inform all persons affected by the Blasting Works;

(f) Perform firing only after the Spotters have confirmed that all persons affected by the Blasting Works have been evacuated;

(g) Provide communication equipment between the shotfirer and the Spotter, maintain and test the equipment;

(h) Prohibit bringing into the Blasting areas any mobile phone that may affect adversely the electric detonator; and

(i) Unless otherwise specified in the Particular Safety Specification, perform Blasting Works only during the daytime.

JC254: deleted and added.

7.6.9 Handling and Storing of Explosives

(1) Storage of Explosives

(a) The Explosive store to be constructed at the Site shall be a secure, substantial and fireproof building, environmentally controlled, locked, guarded and protected at all times and in accordance with the Laws of the Country;

(b) Appropriate numbers and types of personnel shall be assigned by the Contractor for safekeeping and security of the stored Explosives and any other materials;

(c) The Contractor shall maintain records of the types and quantities of all Explosives received and issued at the store, listing the date and time of receipt and issue and the names of all personnel concerned; and

(d) The Contractor shall submit the records to the Engineer when the Engineer requests.

For other storage requirements, the Contractor shall ~~comply with~~ take necessary measures complying with the technical requirements specified in BS 5607: Clause 9.3 [Storage]. (JC255)

(2) Transportation of Explosives

For transportation requirements, the Contractor shall ~~comply with~~ take necessary measures complying with the technical requirements specified in BS 5607: Clause 9.4 [Transport of Explosives on Site]. (JC255)

(3) Quantity of Explosives at the Blasting site

(a) No Explosives shall be stored at the Blasting site;

(b) The quantity of Explosives to be transported from store to be Blasting site shall be limited to the estimated quantity of consumption for the Blasting; and (JC255)

(c) Explosives not used on the day shall be returned to the Explosives store.

(4) Handling of Explosives

(a) Explosives shall be handled with extreme care ensuring that they are not hit, thrown or dropped;

(b) Containers for Explosives shall be solidly constructed from timber or non-conducting material and metals such as iron or foil must not be used on inner surfaces;

(c) Explosive and detonators shall be separately stored in lockable containers;

(d) The containers for Explosives shall protect against water ingress, impact damage; and

(e) Smoking, use of matches, lighters, flames, sparks and the like shall be prohibited in areas where Explosives are being transported, stored and handled, notice boards and warning signs shall be placed in suitable positions.

(5) Records of Blasting and Explosives

(a) The Shotfirer shall prepare daily work records showing the date and time of each Blasting operation, quantity of Explosives received, consumed, misfired and remaining, number of blast holes, charging method for the Blasting and treatment of misfired Explosives;

(b) The Explosives engineer shall check and countersign the Blasting Works records; and

(c) The Contractor shall submit the records to the Engineer when the Engineer

requests.

(6) Notice to the Engineer

The Contractor shall notify the Engineer in writing as follows:

(a) ~~D~~ Notification of delivery (JC255) of Explosives to the store and from the store to the Site, shall each be given to the Engineer by no later than noon on the day preceding the scheduled date of the arrival of Explosives at the store and the delivery to the Site;

(b) Notification of intended Blasting Works shall be given to the Engineer by no later than noon on the day preceding the scheduled date of the Blasting operation; and

(c) Notification of the schedule for the following week's Blasting shall be given to the Engineer by no later than Friday morning of the preceding week.

JC255: deleted, added and modified.

7.6.10 Trial Blasting

The Contractor shall perform trial Blasting in accordance with the Blasting Safety Plan provided in JSSS 7.6.7 [*Blasting Safety Plan*] for the following purposes, and modify the said Blasting Safety Plan according to the results of the trial Blasting:

(1) Confirm the characteristics of rock and topography at the Blasting site that will affect the Blasting operations.

(2) Confirm the suitability of the planned Blasting method, Explosives amount, and scattering prevention and other protection measures.

(3) Confirm the safety of all persons affected by the Blasting Works.

(4) Confirm that the Contractor's criteria are adequate for the purpose of JSSS 7.6.11 [*Monitoring Impact of Blasting Works on Other Properties*].

The Contractor shall submit the trial Blasting reports with any consequent changes to the Blasting Safety Plan to the Engineer before proceeding with the Blasting Works.

7.6.11 Monitoring Impact of Blasting Works on Other Properties

The Contractor shall comply with the requirements of JSSS 7.1.2 [*Monitoring of Excavation Works and Surroundings*].

7.6.12 Particular Safety Measures for Blasting Works

(1) Identification of Blasting workers

Provide clear visible identification mark, uniforms or marked safety helmets to distinguish the Explosives engineer and shotfirer(s) engaged in Blasting Works from other workers.

(2) Drilling Work

(a) No drilling shall be allowed in the hole formed for previous Blasting; and

(b) If misfired explosive is found during the drilling operation, the drilling shall be stopped and the misfired explosive shall be treated in accordance with the procedures planned in JSSS 7.6.7 [*Blasting Safety Plan*] and JSSS 7.6.13 [*Measures after Blasting*], (2) [*Treatment of misfired Explosives*].

(3) Explosives Charging

(a) Drilling operations shall not be permitted during charging of Explosives;

(b) Before charging, thoroughly clean the holes and do not leave any dust or debris;

and

(c) Shock and friction such as the following, which can cause accidental initiation of the charges, shall be avoided:

(i) the over-vigorous use of stemming rods to force Explosives into a shot hole;

(ii) the use of drill rods or other metal tools in a shot hole containing Explosives;

(iii) vehicles running over Explosives and other hazards involving impact or concussion; and (JC256)

~~(iv) shock tube detonators being initiated when subjected to "snap, slap and shoot".~~ (JC256)

JC256: deleted and modified.

For other safety measures for charging work, the Contractor shall comply with BS 5607: Clause 10 [Safety when using Explosives].

(4) Handling Detonators

(a) Measures for Blasting using electric detonators:

(i) Make sure electric detonator's leg wires shall be kept short-circuited until they are connected into the circuit for firing;

(ii) Check if shotfiring cables are not cut or damaged;

(iii) Make sure electric detonators shall be kept away from electric lighting supplies, power supplies and other electrical sources that may cause electric leakage;

(iv) Check if there are no missing or wrong wiring connections or mis-connection with previous blast wires;

(v) Make sure there are no stray electric currents;

(vi) Do not use electric detonators if there is any danger of electrical interference for example from radio-frequency radiation near radio communication facility or radar; and

(vii) Install a lightning detector near the Blasting area, stop Blasting Works when there is a risk of lightning strike, and evacuate workers to a safe place.

For other safety matters for Blasting with electric detonator, the Contractor shall comply with BS 5607: Clause 10.4.3 [*Electric detonators*].

(b) Measures for Blasting using non-electric detonators:

(i) Do not cut or damage the shock tube; and

(ii) Before firing, check the connections visually and make sure that there are no missing or previous wiring connections or wrong wiring connections.

(5) Measures in Ignition:

(a) The connection between the shotfiring apparatus and shotfiring cable shall be made just before ignition;

(b) Ignition shall be made at a safe place isolated and protected according to the degree of the blast; and

(c) The handle shall be removed from the shotfiring apparatus except when igniting.

7.6.13 Measures after Blasting

(1) Confirmation of safety of Blasting area after Blasting:

(a) No persons other than the shotfirer shall enter the Blasting site or its vicinity until the shotfirer has inspected the area and confirmed that it is safe to re-enter; and

(b) The shotfirer shall inspect the area and surrounding area of the Blasting site to check that there is no danger of falling or collapsing of ground and rocks or misfired Explosives.

(2) Treatment of misfired Explosives

If, after ignition, the loaded Explosives did not explode, or if it is difficult to confirm the explosion, the misfired Explosive shall be treated in accordance with the treatment of misfired Explosives in the Blasting Safety Plan, and BS 5607: Clause 10.5 [Misfires] including the following:

(a) Procedure of treatment of misfired Explosives

The following treatment procedure of misfired Explosives shall be taken:

(i) Immediate remedial action;

(ii) Delayed remedial action;

(iii) Further attempt at detonation; and

(iv) Inspection to confirm complete detonation.

The details of the above actions are stipulated in succeeding (b) to (d).

(b) Immediate remedial action

The following initial actions shall be taken by the shotfirer:

(i) Prohibit anyone other than the shotfirer and other authorized personnel from entering the Blasting site;

(ii) Entry to the Blasting site shall only be permitted after the elapsed time from the occurrence of misfire as specified in the Blasting Safety Plan;

(iii) Disconnect from the shotfiring apparatus any removable handle or key and the shotfiring cable, and short-circuit or ground the bare wires together;

(iv) When safe to do so, examine the cable and connections for any defects, and remedy any defect so found;

(v) Make a further attempt to fire the shot;

(vi) Report to the explosive engineer for further instructions;

(vii) Do not collect any exposed Explosives (JC257) before further action is taken;

JC257: modified.

(viii) Do not allow drilling or any other site work to be carried out in the vicinity of the misfire until the misfire has been remedied, unless this is directly involved in the treatment of the misfire; and

(ix) Other actions specified in BS 5607: Clause 10.5.4.1 [Initial actions].

After the initial actions, the following initial remedial actions shall be taken by the shotfirer:

(i) When safe to do so, examine the cable and connections for any defects, and remedy any defect so found; and

(ii) Make a further attempt to fire the shot.

(c) Delayed remedial action and further attempt at detonation:

(i) After the immediate remedial action, when necessary, the delayed remedial action and further attempt at detonation shall be taken.

(ii) The delayed remedial action and further attempt at detonation should be safe removal of the stemming to allow re-priming, or drilling and firing relieving holes placed so as to work away the rock surrounding the stemming and charge of the misfired shot holes.

(iii) The action and attempt shall be taken in accordance with the Blasting Safety Plan, and BS 5607: Clauses 10.5.4.2 [Written instructions], 10.5.4.3 [Attempts to re-fire], 10.5.4.4 [Drilling relieving holes] and 10.5.5 [Drilling relieving holes].

(d) Inspection to confirm complete detonation

After further attempt at detonation, inspection shall be made to confirm complete detonation. If any non or partial detonation is found, remedial measures shall be taken according to Figure-1 Procedure to remedy misfires in BS 5607: Clause 10.5.1 [General].

(e) Take appropriate steps to prevent theft of Explosives and detonators or their initiation by an unauthorised person; and

(f) The Contractor shall promptly notify the Engineer of any misfire event and the remedial actions.

CHAPTER 8: FOUNDATION PILING WORKS

8.1 GENERAL

8.1.1 Scope

(1) This Chapter specifies the safety requirements for piling works which include:

(a) Driven Piling;

(b) Cast in place Piling; and

(c) Hand-Dug Piling

and which are hereinafter collectively referred to as “Foundation Piling Works”.

(2) General requirements ~~for example~~ (JC258) for Contractor’s Equipment, Temporary Works and other related works all which apply to the work in this Chapter, are included in other Chapters of JSSS.

Additional particular requirements are contained in this Chapter.

JC258: deleted.

8.2 PARTICULAR SAFETY MEASURES

8.2.1 General

(1) Foundation Piling Works and all operations connected therewith shall be designated as Dangerous Work and the Contractor shall enclose the working area with temporary fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry - Dangerous Work*].

(2) Unless otherwise specified in the ~~Particular Safety Specification~~ Contract, the Contractor shall be responsible for selecting methods of working and types of Contractor’s Equipment and Temporary Works suitable for the purpose in conformity with GC 4.10 [*Site Data*]. (JC259)

(3) In accordance with JSSS 6.2 [*Earthwork Support*] the Contractor shall be responsible for maintaining the structural integrity of the sides of all excavated or drilled pile excavations and shall provide whatever temporary or permanent Earthwork Support that may be necessary to achieve this.

(4) The Contractor shall execute all Piling Works without weakening any ground or causing any damage to ~~any buildings, structures and other properties, paved areas, roads, footpaths, fences, railways, waterways, drainage, utilities or any other property on the Site or outside the Site (collectively referred to in this Chapter as “other properties”).~~ Other Properties. (JC259)

(5) The Contractor shall also ensure the safety of all persons, whilst they are working in, under or adjacent to any piling excavation on or outside the Site.

(6) The Contractor shall take all necessary measures to prevent the occurrence of any such weakening or damage to ~~other properties~~ Other Properties and obtain the prior consent of the Engineer to such measures before commencing relevant parts of the Foundation Piling Works. (JC259)

(7) ~~Unless otherwise specified in the Particular Safety Specification, such~~ The Contractor shall take further measures ~~shall include design by the Contractor and provision~~ of permanent or temporary supports and reinforcing of such foundations, structures, buildings, roads or paved areas or the like, either on or adjacent to the Site. ~~and obtaining the prior consent of the Engineer before commencing such Foundation Piling Works~~. (JC259)

JC259: deleted, modified and added.

8.2.2 Safety Measures Before Commencement

The Contractor shall plan all Foundation Piling Works before commencement so that they are executed in a safe and methodical manner. The safety measures before commencement of the Works shall be as follows:

(1) The HSO shall inspect the Foundation Piling Works' working area and surrounding areas and ensure that all of the following is acceptable before allowing the Foundation Piling Works to commence:

(a) The ground is level and capable of supporting the loading of the Contractor's Equipment including any dynamic effect of the Foundation Piling Works and the load of any materials to be placed thereon;

(b) The area is clear of any obstructions; and

(c) The areas are properly drained and free from standing water.

If necessary, the Contractor shall improve the ground by stabilising, cleaning, draining, providing paving and/or placing steel decking and temporary piling and the like to provide a suitable, clean, dry and safe working area without causing any risk to the stability of Contractor's Equipment or materials.

8.2.3 Safety Measures for Transportation on Site - Appropriate Equipment and Vehicle

Piles and pile casings, liners, reinforcement cages and the like shall not be transported or relocated by use of pile driving or drilling machines. In all cases the Contractor shall use cranes accompanied or where necessary, trucks and flatbed trailers for the transportation or relocation.

8.2.4 Safety Measures for Driven Piling

The Contractor shall:

(1) Select correct rigging method and appropriate Rigging Equipment to suit the characteristics of the lifting or pile driving machine and the piles, so that piles are mishandled or dropped.

(2) Keep workers other than those directly engaged in the driving operations away from the direct working location when driving operations are taking place.

(3) Provide a lifeline to fix PFAS on the lead when the worker works on the lead of pile driving machine in addition to the fall prevention measures stipulated in JSSS 2.5 [*Fall Prevention*].

8.2.5 Safety Measures for Cast-in-place Piling

When any Cast-in-place Piling Works are adopted, the Contractor shall take appropriate safety measures taking account of features of different methods of work, in particular:

(1) Pile Excavation Works using All-Casing Piling Method:

(a) Keep workers other than those directly engaged in the piling operations away from the pile excavation machine while installing and removing the casing and operating the drop hammer grab. Before any worker is allowed to access the casing or equipment whilst the hammer grab is being operated, ensure that the hammer grab is secured in the casing; and

(b) When any worker needs to enter the casing, confirm that there is no danger in accordance with JSSS 2.1.5 [*Further Requirements for Dangerous Work*].

(2) Pile Excavation Works for Reverse Circulation Bored Piling Method:

(a) When adding or removing drill rods, ensure that a Spotter is present to signal the operator of the drilling machine so that the hands and fingers of workers do not get caught in the work;

(b) Maintain the water level and concentration level of slurry (bentonite solution) in the drilled hole as planned in the Method Statement and prepare for addition or discharge of slurry, consequent to any fluctuation; and

(c) When providing a mud creation pit or a mud discharge pit, take measures to prevent workers from falling into such pits by providing barriers and signage.

(3) Pile Excavation Works for Auger Piling Method:

(a) To prevent overturn of drilling or auger equipment, consider the weight of excavated material in the drilling bucket or on the auger during operation; and

(b) Keep workers other than those directly engaged in the drilling works, away from the drill or auger to prevent injury through splashing or falling of mud or earth or through contact with drill or auger.

8.2.6 Placement of Concrete

(1) Reinforcement cages shall be designed, manufactured and hoisted into place so that they do not deform.

(2) Provide secure rigging slings and welded metal fixings to ensure that reinforcement cages, ~~tremie pipes~~ (JC260) are secure and do not slip or drop off the Hoisting Equipment. (JC261) Tremie pipes shall be treated in same manner so that no danger of slip or drop off the Hoisting Equipment. (JC260) Provide secure rigging equipment and operate hoisting to ensure that reinforcement cages and tremie pipes do not slip or drop off from the Hoisting Equipment (JC261) in accordance with the Method Statement and Safety Plan. (JC260)

JC260: 鉄筋籠とトレミーは時点が異なるので分離して記載した方がいい。

It is better to specify separately for reinforcement cages and tremie pipes because their work timing is different.

JC261: "Hoisting Equipment" with capital letters is defined in Chapter 5, only for use in such Chapter. So, probably "hoisting equipment"?

NK: To MD, how do we reply to JICA and take action to change them as commented?

(3) When handling reinforcement cages and tremie pipes, ensure that a Spotter is present to signal the operator of the machine so that the hands and fingers of workers do not get caught in the work.

8.2.7 Safety Measures for Hand-Dug Piling

Unless otherwise specified in the Particular Safety Specification, the Contractor shall comply with the requirements of the following (1) to (3):

(1) Hand-Dug Piling shall not be adopted by the Contractor in ground with unfavourable conditions such as:

(a) High ground water levels;

(b) Weak geological structure including the possible presence of voids or caverns;

~~(c) Reclamation, or landfill or chemically contaminated sites,~~ (JC262)

JC262: これを含めなければならない特段の理由がなければ削除してください。通常狭いところで他に選択肢がない場合に行うのが深礎なので、埋め立て地では敢えてやる必要はないですが、禁止する必要もないように思います。

If there is no special requirement to include these sites, please deleted this (c). Hand-Dug Piling is generally adopted to the places such as narrow site. Though it is no need to dare to adopt it to the landfill site, it is not need to prohibit the Hand-Dug Piling.

NK: We agree to JC comment, so deleted.

(d) Possible existence of Hazardous Substances; (JC263)

JC263: added.

(e) Containing loose fill in depths exceeding 10 m;

(f) In areas with history of deep-seated ground movement;

(g) Close proximity to water or sewage tunnels; and

(h) Close proximity to shallow foundations.

(2) Hand-Dug Piling may for example be adopted by the Contractor in the following situations where there are no unfavourable conditions:

(a) Steeply-sloping sites with pile depths less than 25 m in depth in soil;

(b) Sites with difficult access or insufficient working room where it may be impractical or unsafe to use mechanical plant; and

(c) Where noise, vibration or damage may be caused by driven or bored piling and which must be avoided.

(3) Hand-Dug Piling shall:

(a) Be not less than 2 m diameter;

(b) Be not more than 25m deep; and.

(c) Have continuous shaft lining.

(4) Access/Exit Facilities

The Contractor shall:

(a) Provide safe and efficient access, egress and emergency exit facilities in the shaft for workers;

(b) Provide vertical ladders, securely anchored to framework or shaft lining and complete with a ladder safety system;

(c) Provide a landing rest platform every 5 m, when the length of any ladder exceeds 10 m and otherwise comply with the requirements provided in OSHA 1926.1053 Ladders where such requirements exceed those specified in this subclause;

(d) Ensure that the upper end of vertical ladders projects at least 1m above the ground and any landing rest platforms;

(e) Provide appropriate and adequate pumps to remove all water from the base of the shafts; and

(f) Take measures to prevent any accidents involving workers with the spoil removal containers and any other equipment particularly throughout the bucket hoisting and descending operations.

(5) Ladder Safety System

(a) A ladder safety system shall be provided to eliminate the risk of injury to any worker falling off the ladder; and

(b) The ladder safety system shall comprise a carrier, safety sleeve, lanyard, connectors, and body harness and all workers shall be trained in its use.

(6) Communication and Signalling Measures

(a) Signals for delivering materials and equipment or discharging excavated materials to and down or from the shaft shall be determined in advance and all workers shall be trained in their use;

(b) Signals and evacuation methods during emergencies shall also be determined in in advance and all workers shall be trained in their use with regular evacuation training; and

(c) Where considered necessary by the HSO handheld radios shall be provided to the

Operation Leader working at the base of the shaft and a Spotter at the ground level for all communications.

(7) Environmental Measures

(a) Ensure a continuous, adequate and safe air supply to workers located at the bottom of the shaft;

(b) Provide monitoring equipment, set up alarms and evacuate workers if air quality deteriorates and keep records in accordance with JSSS 2.1. [*Work Environment*]; and

(c) Provide adequate temporary lighting

(8) Measures before Commencing Work

Check the condition of the excavated ground surface in the shaft and whether there is any abnormality in the shaft lining.

(9) Measures during Execution of the Work

(a) When workers are in the shaft, assign a Spotter at ground level and located within direct view at the upper edge of the shaft;

(b) Minimise the depth of each stage of excavation;

(c) Avoid introducing new teams of workers or changing over teams until each stage of excavation is completed and temporary support or shaft lining has been installed;

(d) Provide immediate temporary support for the excavated faces prior to casting the liner;

(e) Providing reinforcement to the concrete liner;

(f) Providing drainage to each stage of excavation with relief wells, sumps and pumping as appropriate:

(g) Stop the work and evacuate workers when abnormal water inflow occurs in the shaft and resume work only after taking countermeasures and confirming the safety of the Site and the effectiveness of the measures;

(h) Pay constant attention to any changes in soil types, properties, etc. and if any abnormality is identified at the excavated surface during work or in the shaft lining, immediately stop the work, evacuate workers and take appropriate remedial measures, resume the work only after confirming that there is no further risk; and

(i) Ensure nothing is dropped into the shaft that may injure workers.

8.2.8 Monitoring Impact of Foundation Piling Works on Other Properties

The Contractor shall comply with the requirements JSSS 2.1.7 *[Monitoring and Records]*.

CHAPTER 9: CONCRETE WORKS

9.1 GENERAL

9.1.1 Scope

(1) This Chapter specifies the safety requirements for concrete works which include:

(a) Cast-in place (poured or pumped) concrete;

(b) Reinforcement (reinforcing bar and fabric reinforcement);

(c) Formwork (including associated Falsework); (JC264)

and which are hereinafter collectively referred to as “Concrete Works”.

(2) General safety requirements, covering for example Contractor’s Equipment including stone crushing plants and screening equipment, concrete batching plants, Temporary Works and other related matters, ~~all which apply to the work in this Chapter.~~ (JC264) are described in other Chapters of JSSS.

Additional particular requirements are contained in this Chapter.

JC264: deleted and modified.

9.1.2 Safety Plan and Instructions to Workers

Prepare a Safety Plan describing the safety requirements for Concrete Works and inform all workers engaged in the Concrete Works of the content and requirements. The Safety Plan shall pay due care to the workers’ health matters (e.g. back injury) in relation to handling of reinforcement, formwork panels or other heavy items, and include necessary preventive measures (e.g. using appropriate Contractor’s Equipment, assigning sufficient number of workers).

9.2 PARTICULAR SAFETY MEASURES FOR CAST-IN PLACE CONCRETE WORK

The following safety requirements are additional to the general requirements described in other Chapters.

9.2.1 Safety Measures at Planning Stage

(1) The Contractor shall plan all Concrete Works so that they are executed in a safe and methodical manner.

(2) The Contractor shall plan the method of cast-in place concrete placement and carry out the design and construction of Formwork and Falsework (JC265) to take account of uneven and excessive impact force and different or asymmetrical loads, thicknesses and pressures in certain areas during concrete placement to avoid deformation beyond allowable tolerances specified in the Contract, any damage or collapse of Formwork and Falsework and show all details in the Method Statement and Safety Plan.

~~(3) The Contractor shall plan the method of cast-in place concrete placement and carry out the design and construction of formwork and falsework to take account of uneven and excessive impact force and different or asymmetrical loads, thicknesses and pressures in certain areas during concrete placement to avoid deformation beyond any tolerances for concrete structure that may be specified in the Particular Safety Specification, any damage or collapse of formwork or falsework and show all details in the Method Statement and Safety Plan.~~ (JC266)

JC266: (2)と(3)はほぼ同じ、制作誤差範囲の規定を契約とする（２）か特記安全仕様書とするか（３）だけの違い。どちらか一つで良い。

(2) and (3) are almost same. Difference is allowable tolerances specified in the Contract in (2) and any tolerances for concrete structure that may be specified in the Particular Safety Specification (3). Only one of two is sufficient to specify here.

NK: agreed.

(4) The Contractor shall provide PPE such as rubber gloves, face masks and goggles to the workers when spraying concrete form release agents to prevent chemical injury, and where there is a possibility that release agent may splash on the third parties, take measures such as establishing exclusion zone with temporary barriers and locate Spotters to prevent those persons from entering the area.

9.2.2 Safety Measures for Placement

The Contractor shall:

(1) Designate concrete placement works (including all pumping and hoisting of concrete) as Dangerous Work, enclose the immediate working area with temporary signs and fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry - Dangerous Work*].

(2) Inspect all reinforcement, Formwork and Falsework (JC265) before and during concrete placement. If any ~~defect~~ abnormality is discovered, stop the placement works and evacuate the workers immediately, carry out repairs and reinspect before resuming.

(3) Place the concrete in accordance with the Method Statement and avoid uneven and excessive impact force and different or asymmetrical thicknesses and pressures in certain areas during concrete placement Additional materials shall be stored at the concrete placing site for use to reinforce Falsework (JC265) in case of occurrence of their local deformation.

JC265: modified.

9.2.3 Safety Measures for Placement by Pumping

The Contractor shall take the following safety measures for delivery of cast-in place concrete with the use of concrete pumps:

(1) Inspect the condition of concrete pump delivery pipes, end hoses and all connections, ensure that they are free from defects and blockage, check that all joints and connections are secure and free from leakage before and during concrete placement works.

(2) Ensure that all delivery pipes, end hoses and other system components are all correctly pressure rated and capable of withstanding the maximum pump pressure.

(3) Maintain a safe separation distance between the delivery pipe, end hose and boom and any existing Overhead Services as required by JSSS Chapter 3 [*Existing Underground, Concealed and Overhead Services*], Table 3.2.1: Safe Separation Distances.

(4) Maintain a safe separation distance from any obstructions (Contractor's Equipment, buildings, etc.) and avoid any risk of hitting or touching any obstructions with the pumping equipment, delivery pipes, end hoses or boom.

(5) Check the ground condition, ensure a firm, stable and horizontal working base at all times and position pumping equipment and ready-mixed concrete trucks at a safe distance from the edge of any excavations, drop or slope to protect against any slippage or fall of equipment and ready-mixed concrete trucks or collapse of ground.

(6) Fully extend outriggers and ensure stability of pumping equipment and ready-mixed concrete trucks at all times.

(7) Arrange proper communications and signals before starting the placement between workers, Spotters and operators of equipment and ready-mixed concrete trucks and ensure there is a Spotter at the point of placement.

(8) Never allow workers to stand between ready-mixed concrete trucks and pumps when ready-mixed concrete trucks are reversing.

(9) Ensure that workers are out of the path of the boom when moving the boom.

(10) If a blockage or clogging occurs inside the pipeline during the pour, stop pumping immediately and instruct workers to move to a safe position before attempting to remove the blockage or clogging. The pipeline shall be opened after releasing the pressure inside in accordance with the predetermined procedure.

(11) Ensure that hoppers and chutes are securely fixed and that workers are aware of the method of operation and safe use.

(12) Ensure that the delivery pipe and hose at the end of the concreting pump booms are securely connected so that they do not fall or become detached.

(13) Prohibit workers from working on the hopper screen of the concrete pump, remove obstructions and foreign materials in the hopper only after stopping the agitating blade and applying lockout/tagout procedures.

(14) Prohibit workers from entering in front of and below the outlet of concrete pump delivery pipes and end hoses to prevent workers being struck by pipes or flailing hoses.

9.2.4 Safety Measures for Ready-Mixed Concrete Trucks

The Contractor shall take the following measures for the ready-mixed concrete trucks in the transportation and delivery of cast-in place concrete.

(1) Ensure that drivers are aware of and take due account of the heavy load and high centre of gravity of loaded ready-mixed concrete trucks during delivery and discharge to maintain safety and prevent overturning.

(2) Ensure that workers do not come into contact with and/or become entangled with the rotating drum and other moving parts of ready-mixed concrete trucks and that they are prevented from looking into the drum.

9.2.5 Safety Measures for use of Concrete Buckets

The Contractor shall take the following measures when using concrete buckets for hoisting and placement of cast-in place concrete:

(1) Comply with JSSS 5.2.5 [*General Safety Measures for Hoisting Operations*] for selection of proper Hoisting Equipment (JC266) and Rigging Equipment, arrangement of proper communication tools, signals and placement of Spotters.

JC266: same comment as 8.2.6 JC261.

(2) Ensure that the movable gate is locked before hoisting and is only operated by a skilled worker when it is opened for discharge.

(3) Take measures to stabilise the bucket during hoisting and prevent any uncontrolled swinging. Prohibit workers from pushing and pulling bracket except for minor adjustment of location of the bucket for discharging concrete.

(4) Prevent any persons or workers from entering the places below bucket.

(5) Discharge the concrete slowly and in a controlled manner to prevent the bucket from rebounding after discharge.

9.2.6 Safety Measures for use of Concrete Vibrators

The Contractor shall take the following measures when using concrete vibrators for compacting of cast-in place concrete:

(1) Take all necessary measures to prevent electric shock, complying with JSSS 4.3.12 [*Additional Requirements for Electric Powered Equipment*].

(2) To prevent vibration injury to workers, provide anti-vibration gloves and ensure that they are properly used.

9.3 REINFORCEMENT

9.3.1 Safety Measures at Planning Stage

The Contractor shall:

(1) Prepare a Safety Plan, Method Statement and fixing and placing drawings of reinforcement describing the method of cutting, bending and fixing and showing the types and positioning of supports, ties and bracing necessary to support and rigidly secure the reinforcement and to prevent any movement or collapse.

(2) Inform all relevant workers of the content of the Safety Plan, Method Statement and assembly drawings.

9.3.2 Safety Measures at ~~Fabrication,~~ Cutting, Bending, Transporting, Fixing and Placing Stage (JC267)

JC267: modified.

The Contractor shall take the following measures during cutting, bending, transporting, fixing and placing of reinforcement:

(1) Cutting and Bending:

(a) Designate the work as Dangerous Work, enclose the immediate working area with temporary signs and fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry - Dangerous Work*];

(b) Maintain the working area in a safe, organised, uncluttered and clean condition at all times, avoid excessive storage by retaining sufficient quantities of reinforcement for immediate use, locate equipment in known positions, prevent any fall or dropping of material, equipment and tools, remove offcuts to a separate area and ensure the area is safe and that the risk of workers falling or tripping is avoided; and

(c) Maintain stored reinforcement material in a safe and secure manner and prevent collapse or fall by providing adequate restraints.

(2) Transporting:

(a) Ensure that Scaffolding and any other temporary structures on which reinforcement is to be temporarily placed is capable of supporting the load, ensure that the load is distributed safely and that ~~is~~ it does not cause any obstruction to the passage of other workers; (JC268)

JC268: modified.

(b) Ensure that reinforcing bar is lifted and suspended horizontally to prevent any slippage during Hoisting Operations and also that it is bundled safely and securely tied to prevent any reinforcing bars from sliding out;

In principle, hoist the bundle of reinforcing bars, keeping them horizontal and maintaining the balance by using two rigging slings; and

(c) When transporting to the working location use flatbed trailers or truck, ensure that the trailer or truck is of sufficient length to avoid any overhang of reinforcing bars and provide appropriate warning signs and lighting on reinforcing bars if necessary in accordance with the local regulations to avoid collision with other vehicles, persons and workers.

(3) Fixing and Placing:

(a) Prepare proper temporary access to and support for fixing and placing reinforcement in position;

(b) Prevent any risk of fall and also any distortion or weakening of reinforcement by prohibiting workers from standing, walking or climbing on such reinforcement and where necessary provide safe temporary boarded walkways for workers use;

(c) Ensure that fixing and placing is in exact accordance with the fixing and placing drawings and that the correct types and positioning of supports, ties and bracing is maintained to properly support and rigidly secure the reinforcement and prevent undue movement or collapse;

(d) When there is any danger of reinforcement falling or collapsing during fixing and placing in wind and rain, stop the fixing and placing work. After conditions improve, inspect the reinforcement and take measures to correct any abnormality before continuing with fixing and placing;

(e) Prohibit working concurrently at levels where any other worker is working underneath in accordance with JSSS 2.6.7 [*Working Above or Below Others*]; and

(f) Provide temporary protection caps to exposed ends of reinforcing bars to prevent injury to workers.

9.4 FORMWORK (INCLUDING FALSEWORK)

9.4.1 General

Any reference to "Formwork" in this Section shall also be deemed to include reference to the associated Falsework for that Formwork. (JC269)

9.4.2 Safety Measures at Planning Stage

The Contractor shall:

(1) Design the formwork and manage its provision, use and removal in accordance with JSSS 1.37 [*Design and Management of Temporary Works*] and the further requirements of JSSS Section 6.1 [*General Requirements of Temporary Works*].

(2) Prepare a Safety Plan, Method Statement and design drawings of formwork describing the method of fabrication, assembly, erection and removal and showing details of all materials, components, types and positioning of supports, ties and bracing necessary to create a rigid and secure temporary support structure for the concrete, reinforcement and workers and to prevent any movement or collapse.

(3) Inform all relevant workers of the content of the Safety Plan, Method Statement and design drawings.

9.4.3 Safety Measures at Fabrication and Assembly Stage

The Contractor shall take the following measures during fabricating, transporting and assembling of formwork:

(1) Designate the work as Dangerous Work, enclose the immediate working area with temporary signs and fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry - Dangerous Work*].

(2) Maintain the working area and storage area in a safe, organised, uncluttered and clean condition at all times, avoid excessive storage by retaining sufficient quantities of material for immediate use, locate equipment in predetermined places, prevent any fall or dropping of material, equipment and tools, remove offcuts to a designated area.

(3) Ensure that the Falsework is free from cracks, defects and deformation. (JC269)

(4) Ensure that Scaffolding and any other temporary structures on which formwork is to be temporarily placed is capable of supporting the load, that the load is distributed evenly and within the allowable stress of formwork. (JC269)

(5) During any Hoisting Operations, ensure that all necessary measures are taken to prevent formwork being affected by wind and that any risk of collision and consequent injury and damage is avoided. (JC269)

JC269: modified.

9.4.4 Safety Measures during Dismantling and Removal Stage

(1) Ensure that formwork is only dismantled when so instructed or approved in writing by the HSO.

(2) After dismantling, stack formwork panels horizontally to avoid overturning due to strong wind or applied loadings; and

(3) Any protruding nails, wires, projecting members and splinters shall be removed or bent flat to avoid injury to workers and other persons.

CHAPTER 10: DIVING WORKS

10.1 GENERAL

10.1.1 Scope

This Chapter specifies the safety requirements for Diving Operations which shall include Surface-Supplied Air Diving and SCUBA Diving and which are hereinafter collectively referred to as "Diving Works". (JC270)

Saturation diving and mixed-gas diving are not included.

10.1.2 Definitions

(1) The definition of terms for the purpose of this Chapter are as follows:

(a) "**Designated Person-in-Charge**" or "**DPIC**" means a senior person who, through qualification, experience and capability is deemed by the HSO to be qualified to be in charge of all aspects of the Diving Operation including those affecting the safety and health of members of the Dive Team; (JC270)

(b) "**Dive Team**" means Divers, support assistants and ~~d dive~~ workboat crew who are involved in any Diving Operation, including the Designated Person-in-Charge; (JC270)

JC270: modified.

(c) ~~"**Diver**" means a worker working in water using underwater breathing apparatus which supplies compressed breathing gas at the ambient pressure;~~ (JC271)

JC271: Annex 1.1 にも定義あり。どちらかを削除。There are definitions in Annex 1.1 and the above, so one shall be deleted.

(d) "**Diving Operation**" means one single diving activity for one Diver or a team of Divers commencing from the time when the first Diver enters the water and extending until the last Diver has left the water, chamber or other environment in which the dive, or any part of the dive, took place and has completed any requisite decompression procedures, including, where it may be reasonably anticipated that this will be needed, any therapeutic recompression. The nature and size of any Diving Operation shall be such that it can be safely supervised by one person;

(e) "**Diving Works**" means a part of the Works consisting ~~any activity, made up~~ of one or more Diving Operations~~, commencing from the first Diving Operation and extending until the latest Diver in the last Diving Operation has left the water, chamber or other environment in which the dive, or any part of the dive, took place and has completed any requisite decompression procedures, including, where it may be reasonably anticipated that this will be needed, any therapeutic recompression. "**Diving Works**" is the term used for the overall diving job whether it lasts two hours or two months, and it can be made up of one or more Diving Operation~~; (JC272)

JC272: (d)とほとんど内容が同じで意味を為していません。左記のように修正してはどうでしょうか。
The content is almost same as (d). The revision is proposed as above.
NK: we agree to the above. To MD, how do you think?

(f) "**Dive Safety Plan**" means the Safety Plan prepared for Diving Works in accordance with JSSS 10.2 [*Dive Safety Plans*];

(g) "**SCUBA Diving**" means a diving mode independent of surface supply in which the Diver uses open circuit self-contained underwater breathing apparatus; and

(h) "**Surface-Supplied Air Diving**" (JC273) means a diving mode in which the Diver is supplied at the dive location with a piped supply of compressed air for breathing.

10.1.3 Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Chapter or relevant to the subject of this Chapter and which are not fully covered by JSSS, the Contractor shall take necessary measures for Diving Works complying with the technical requirements specified in OSHA 29 CFR Part 1910, Subpart T – Commercial Diving Operations for Surface-Supplied Air Diving and SCUBA Diving (excluding saturation and mixed-gas diving). (JC273)

JC273: modified.

10.2 DIVE SAFETY PLANS

10.2.1 General Requirements for the Dive Safety Plans

~~(1)~~ The Contractor shall prepare Dive Safety Plans as part of the Safety Plan for the Works in compliance with the requirements of with JSSS 1.7 [*Contractor's Safety Plans*].

~~(1) The submission requirements in accordance with JSSS 1.7.3 [*Contractor's Safety Plans*] shall be as follows:~~ (JC274)

~~(a) The Bid Stage Safety Plan shall include the Outline Dive Safety Plan;~~

~~(b) The Baseline Safety Plan shall include the Updated Dive Safety Plan; and~~

~~(c) The Particular Safety Plans shall include the individual Particular Dive Safety Plans to be submitted for and in advance of each Diving Operation.~~

JC274: ドラフトファイナルにおいて、前回のバージョンと比較して Dive Safety Plan の記述をかなり拡充していただいていますが、以下の 2 点に関して違和感があったので、大きく修正しています。

(1) Diving についてだけ、Bid Stage、Commencement、Particular と 3 種類の Safety Plan を要求していること。

(2) Particular については、ドラフトファイナルで頂いていた記述を見ると、個々の Diving Operation 毎に提出することを求めているように思えるが(10.2.1(2))、Diving Operation の定義と合わせ読むと、例えば「同じケーソンに関する作業をするのに、午前と午後で Diving を 2 回に分けてやるときには、午前で 1 回、午後にも 1 回、それぞれの Diving Operation 事に Safety Plan を提出する」ようなことを意味しているようにも読み取れ、それはさすがにやりすぎのように見える。

上記の事情から、Bid Stage、Commencement に関しては、それぞれの段階での全体の Safety Plan に Diving のことも記述することを求める記述にしてあります。

また、個別の Diving Operation に関する Safety Plan については一日の Diving 作業に関する記載をまとめて「前日までに提出する」ことで記載を修正し、名称も Dive Safety Schedule としています（10.2.4（1）の修正をご覧ください）。

We revised drastically stipulations of Safety Plans because we felt something different from our intention regarding the following tow points though you have extended Dive Safety Plan after the last issue.

(1) Only Diving works in JSSS are requested to make three kinds of plan; Bid Stage, Commencement and Particular Plans.

(2) It can be read that Particular Plan in DFR requests submission of Plans for each Diving Operation (from 10.2.1(2)) and definition of Diving Operation, for example the Plan should be submitted at each Diving Operation in morning and afternoon for caisson works.) It may be excessive request.

From the above, we revised the stipulations so that Bid Stage and Commencement Safety Plan shall include plans of Diving Operations at each stage.

We revised JSSS so that each Safety Plan to explain each Diving Operation is requested to be prepared for Diving Operation in a day and submitted at least one day before the day of the Operation. The title is revised to Dive Safety Schedule. (Please see 10.2.4 (1).)

NK: To MD, please review the above comment.

10.2.2 Bid Stage Dive Safety Plan

~~(1)~~ In compliance with JSSS 1.7.6 [*Bid Stage Safety Plan*], the Bid Stage ~~Dive~~ Safety Plan shall include an outline plan indicating the Contractor's operational procedures for each diving mode to be used in the Works ~~(referred to in OSHA as the "safe practices manual")~~. This shall be in sufficient detail to give an understanding of the Contractor's intentions regarding the diving safety procedures that the Contractor intends to implement. (JC275)

~~(1) The Bid Stage Dive Safety Plan shall contain a copy of the OSHA standard and the Contractor's policies for implementing the requirements of this standard.~~ (JC275)

JC275: revised and deleted.

10.2.3 Baseline ~~Dive~~ Safety Plan

(1) In compliance with JSSS 1.7.7 [*Baseline Safety Plan*], the Baseline ~~Dive~~ Safety Plan shall be a development of the Bid Stage ~~Dive~~ Safety Plan and shall include detailed safety procedures and standard checklists to apply to all Diving Operations, equipment procedures, and emergency procedures (at a minimum covering fire, equipment malfunction or failure, adverse environmental conditions and medical illness and injury).

(2) The HSO shall review the Baseline ~~Dive~~ Safety Plan to determine if it is correct and compliant with the requirements of OSHA and JSSS.

(3) A copy of the Baseline ~~Dive~~ Safety Plan together with a copy of the OSHA standard and the Contractor's policies for implementing the requirements of OSHA (from the Bid Stage Dive Plan) shall be made available at the dive location to each Dive Team member and explained to the Dive Team by the HSO and DPIC. (JC276)

JC276: revised and deleted.

10.2.4 ~~Particular~~ Dive Safety ~~Plans~~ Schedule

(1) ~~In compliance with JSSS 1.7.8 [*Particular Safety Plans*], the Particular Dive Safety Plans shall contain all further information specific to each Diving Operation not covered by the foregoing Bid Stage and Baseline Dive Plans together with~~ In order to secure safety of all Diving Operations, a dive safety schedule shall be prepared containing information specific to Diving Operations to be carried out in a day together with all supplemental information obtained during pre-dive planning and assessment, to collectively demonstrate the Contractor's compliance with the requirements OSHA and JSSS for each Diving Operation, including for example: (JC277)

(a) Safety procedures and checklists for each Diving Operation;

(b) Name of each Dive Team member, buddy diver assignments, individual work assignment and responsibility and confirmation from the DPIC that they each comply with all diving health and safety requirements and are therefore approved to work on the Diving Operation;

(c) The planned dive profile for each Diver showing their maximum bottom time and ascent rate with decompression stages and times ~~and~~ , (JC277)taking account of repetitive dives;

(d) Description of all diving equipment, diving gases and consumables, PPE, procedures for their use and signed checklists to confirm compliance;

(e) Description of the workboat and workboat facilities, together with information on the location of the workboat in relation to the dive site, and procedures for the use and operation of the ~~dive~~ workboat (JC277) during Diving Operations, any surface hazards and any restriction in operation due to surface traffic conditions;

(f) Description of all other Contractor's Equipment, tools and consumables for the assigned work tasks, procedures for their use and checklists;

(g) The arrangements at the Site of the Diving Works for emergency recompression/decompression and the safe transport of any Diver for treatment.

(h) The climatic, marine, natural and physical conditions that are likely to be encountered during any Diving Operation and the procedures for commencement, continuation or stopping of any Diving Operation following any change in these conditions in accordance with JSSS 10.3 [*Climatic, Marine, Natural and Physical Conditions*];

(i) Communication systems and procedures for communications:

(i) between Divers;

(ii) between Divers and the workboat; and

(iii) Between the work boat and the relevant marine authorities.

(j) Any further information and instructions to be given to the Divers, support assistants and other workers related with the Diving Operations and the working methods and safety measures;

(k) ~~The Particular Dive Safety Plan shall be prepared by the DPIC or another Diver that that has the qualification, experience and capability deemed sufficient by the HSO;~~ A dive safety schedule shall be prepared by DPIC or another Diver that has qualification, experience and capability deemed sufficient by the HSO; (JC277)

(l) ~~The Particular Dive Safety Plan shall be reviewed and approved by the HSO;~~ A dive safety schedule shall be submitted to the HSO by the day preceding the scheduled date of the Diving Operations for his review and approval; (JC277)

(m) The content of the ~~Particular~~ dive safety ~~Plan~~ schedule (JC277)shall be explained to all Dive Team members during the employee briefing by the HSO or DPIC in accordance with OSHA 29 CFR 1910.421(f));

(n) If considered necessary by either the HSO or DPIC, individual Dive Team members shall be given additional training and testing; and

(o) A copy of the ~~Particular~~ dive safety ~~Plan~~ schedule (JC277) shall be made available at the dive location to each Dive Team member.

JC277: deleted, added and modified.

10.3 CLIMATIC, MARINE, NATURAL AND PHYSICAL CONDITIONS

10.3.1 General

(1) The Contractor shall compile relevant information from statistical records, recent and current forecasts of conditions which may be encountered in support of the Particular Dive Safety Plan and shall establish criteria and controls for commencement, continuation or stopping of any Diving Operation due to such conditions.

(2) The (updated) Baseline ~~Dive~~ (JC278) Safety Plan shall describe how such criteria shall be applied and how such controls shall be implemented.

10.3.2 Information on Conditions for ~~Particular Dive Safety Plans~~ dive safety schedule (JC278)

(1) Where necessary, the Contractor shall make exploratory dives to survey and establish all relevant conditions at the dive site such that all ~~Particular Dive Safety Plans~~ dive safety schedule (JC278) are based upon the best and most timely available information.

JC278: deleted and modified.

(2) Relevant information shall also be obtained by the Contractor from all available sources and shall include for example the following:

(a) Climatic information and forecasting at the diving location:

(i) Wind speed and direction;

(ii) Air temperature;

(iii) Surface visibility, fog, sea mist;

(iv) Likelihood and intensity of electrical storm; and

(v) Weather forecasting.

(b) Water/Marine Conditions

(i) Sea state; wave height and direction;

(ii) Height and time of tides;

(iii) Water depths;

(iv) Water Temperatures;

(v) Water currents, direction and speed;

(vi) Visibility at depths; and

(vii) Water level variation in rivers or lakes during flood periods.

(c) Physical Conditions

(i) Underwater cables and pipes;

(ii) Wreckage and other artificial obstacles;

(iii) Geotechnical conditions affecting the work; and

(iv) UXO, Dangerous Goods and Hazardous Substances.

(d) Natural Conditions

(i) Natural obstructions;

(ii) Coral reef or other marine life to be protected; and

(iii) Danger from wildlife and precautions to be taken.

(e) Surface Traffic

(i) Surface traffic details, timings and restrictions, and

(ii) Danger, precautions and control of surface traffic.

(f) Diving Works Area

(i) Demarcation of diving location; and

(ii) Limits of working area.

10.4 PERSONNEL FOR DIVING OPERATIONS

10.4.1 Qualification of Diving Personnel

Qualification of the Dive Team members shall be in accordance with the specified OSHA requirements and shall for example include the following:

(1) Each Diver shall possess a valid commercial diving certification for the appropriate training level issued by an internationally recognised Diver competence assessment organisation which shall be approved by the HSO and Engineer.

(2) Each Dive Team member shall have the experience and training necessary to perform assigned tasks in a safe and healthful manner.

(3) Each Dive Team member shall have experience and training in the following:

(a) The use of tools, equipment and systems relevant to assigned tasks;

(b) Techniques of the assigned diving mode; and

(c) Diving Operations and emergency procedures.

(4) All Dive Team members shall be trained in ~~cardiopulmonary resuscitation~~ CPR (JC279) and first aid to a minimum standard of that recommended by the International Federation of Red Cross and Red Crescent Societies standard course or equivalent.

JC279: modified.

(5) Dive Team members who are exposed to or control the exposure of others to hyperbaric conditions shall be trained in diving-related physics and physiology.

(6) The qualifications of all Divers shall be checked and verified in accordance with the specified OSHA requirements.

10.4.2 Designated Person-in-Charge (DPIC)

(1) The Contractor shall assign a DPIC to each Diving Operation.

(2) The DPIC shall have experience in, and knowledge of all phases of the Diving Operation for which he is responsible.

(3) The DPIC shall be immediately responsible for the health and safety of the Dive Team.

(4) The DPIC shall be stationed at the dive location, and shall not be stationed at another dive location (i.e., the DPIC must be stationed at one dive location and be responsible only for the Diving Operation at that location).

(5) The DPIC can be a Diver when qualified as a Diver, and when another Dive Team member is available at the dive location who is trained and capable of performing the necessary functions of the DPIC's duties when the DPIC is a Diver in the water.

(6) The qualifications of the DPIC shall be checked and verified in accordance with the specified OSHA requirements.

10.4.3 Duties of DPIC

The DPIC shall have the duties and responsibilities required by the content of this Chapter and the specified OSHA requirements, including the following:

(1) Manage the health and safety of the Dive Team.

(2) Manage and supervise the Diving Operation.

(3) Assign tasks to Dive Team members.

(4) Issue instructions for the Diving Operation to the Dive Team.

(5) Issue instructions to temporarily stop work when the DPIC considers that it is not safe to continue.

(6) Support the HSO with the health and safety management of the Diving Operations.

(7) Ensure that all members of the Dive Team keep records.

(8) Collect records, check, approve and submit to HSO.

10.4.4 Diver Assignments

(1) Each Dive Team member shall be assigned tasks commensurate to the persons experience and training, except that limited additional tasks may be assigned to a Diver undergoing training provided that these tasks are performed under the direct supervision of an experienced Dive Team member.

(2) The HSO shall not permit a Dive Team member to be exposed to hyperbaric conditions against the member's will, except when necessary to complete decompression or treatment procedures.

(3) The HSO shall not permit a Dive Team member to dive or be otherwise exposed to hyperbaric conditions for the duration of any temporary physical impairment or condition ~~which is known to the Diver's employer and the DPIC and~~ -(JC280) which is likely to affect adversely the safety or health of a Dive Team member.

(4) ~~No Diver shall dive in any Diving Operation unless the DPIC and the complete Dive Team are present.~~ (JC280)

JC280: deleted.

10.4.5 Assistants and Duties of Dive Team

The Contractor shall appoint such Divers and support assistants within each Dive Team as are considered necessary by the DPIC for the Dive Team to discharge its duties in a safe and competent manner.

All Dive Team support assistants shall have the duties and responsibilities required by the content of this Chapter and the specified OSHA requirements, including the following:

(1) Operate the air compressors.

(2) Control the valve for the surface supply of breathing air.

(3) Communicate with the Diver so that the Diver descends and ascends properly.

(4) Communicate to supply the air to the Diver properly between the assistants in charge to control the valve and to communicate with the Diver.

(5) Inform the Diver immediately when there is any risk due to a failure of air supply, weather change, sea condition changes, operations of other vessels and potential hazards.

(6) Inspect the connection between the helmet and the breastplate of the Diver before the start of Diving Operations when using a diving helmet.

(7) Coordinate the position of the workboat and avoid any conflict with the Diver.

(8) Ensure the safety of the Diver by maintaining communication with voice or video communication device.

(9) Ensure the safety of the Diver by observing the air bubble of breathing of the Diver.

10.4.6 Health Checks

(1) In addition to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*] and in compliance with the OSHA requirement for the Contractor to make himself fully aware, the Contractor shall carry out particular health checks on all Divers to ascertain that they are medically and physically fit to perform their duties.

(2) Such checks shall include for example checks for the existence of any illness or any deficiency in:

(a) The respiratory system, cardiovascular system, nervous system, musculoskeletal system, ear, nose and throat, and endocrine system;

(b) Vision;

(c) Dental health; and

(d) Any other health conditions and disease which may affect the Diving Operation.

(3) Any Diver that does not pass the above checks shall not be allowed to dive until the condition has improved and after further checks are successful.

(4) Additionally, and in accordance with the OSHA standard:

(a) The DPIC shall inquire into each Diver's health prior to each Diving Operation; and

(b) The Contractor shall advise all Divers of the procedures for reporting physical problems or adverse physiological effects during and after diving.

(5) Consistent with the above and the OSHA provisions, the Contractor shall not require any Diver to dive or otherwise work under hyperbaric conditions when the Diver:

(a) Has any ailment that is likely to adversely affect the safety or health of any member of the Dive Team;

(b) Lacks the necessary training or education; or

(c) Refuses to work under such hyperbaric conditions.

(6) Should a Diver request termination during a dive, ~~it may be necessary to~~ the Contractor shall, if necessary, (JC281) prolong the Diver's exposure to hyperbaric conditions to complete decompression or medical recompression treatment to avoid serious physical harm or death to the Diver.

JC281: modified.

10.5 DIVING EQUIPMENT, TOOLS, FACILITIES AND WORKBOATS,

10.5.1 Diving Equipment

(1) The Contractor shall provide workboats, diving equipment, work tools and other facilities fully in compliance with OSHA 29 CFR Part 1910, Subpart T – Commercial Diving Operations, §1910.430 Equipment.

(2) Workboats, diving equipment, work tools and other facilities are defined as Contractor's Equipment and shall therefore comply with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*]. (JC281)

JC281: Bette to also refer to JSSS 4 since this relates to Contractor's Equipment?
NK: To MD, please review the above comment.

10.5.2 Diving Workboats

(1) Workboats shall be:

(a) Robust and seaworthy;

(b) Stable in operation;

(c) Suitable size, draft and shape to suit the Diving Operations;

(d) Equipped with marine band radio and with a shore station that is attended at all time that the workboat (JC282) is in operation and can provide emergency support if required;

(e) Equipped with marine lighting;

(f) Equipped with life jackets, first aid sets, distress flares and other necessary emergency equipment;

(g) Provided with secure and robust ladders or platforms for Divers to easily enter or exit the water; and

(h) Provided with a roof and cabin to protect the crew and Dive Team from heat, cold and rain.

(2) Workboats shall be provided with the means to assist an injured Diver from the water (such as an in-water platform, small boat or basket stretcher) or into a diving bell. The Contractor shall ensure that there are sufficient Dive Team members or additional Contractor's Personnel to assist.

(3) Unless otherwise specified ~~the Contractor~~ in the Contract (JC282) shall provide a separate small boat for rescue at the workboat, suitable for assisting and recovering

Divers who are in difficulty or have drifted away from position.

JC282: revised.

10.5.3 Inspections and Maintenance

The Contractor shall comply with all requirements of JSSS 4.2 [*Inspection, Maintenance and Repair*] and ensure that workboats, equipment, tools and facilities are inspected, fully maintained and operational when mobilised to the Site and thereafter are inspected, maintained and repaired before the commencement of the first and of all subsequent days of operation.

The Contractor shall keep the inspection and working records and make them available for the inspection of the Engineer upon request.

The Contractor shall prohibit use of workboats, equipment, tools and facilities until the requirements of JSSS 4.2 [*Inspection, Maintenance and Repair*] are fully complied with.

10.6 PARTICULAR SAFETY MEASURES

10.6.1 Measures before Diving Operations

The Contractor shall take the following measures before commencement of any Diving Operation:

(1) Dive Teams

(a) Discuss the diving methods and safety procedures;

(b) Discuss the work methods and procedures and the assignment and placing of the Divers and work task sharing;

(c) Advise of the diving timetable and required compliance;

(d) Inform of the climatic, marine, natural and physical conditions;

(e) Conduct the health check; and

(f) Check that support assistants and crew on the workboat are wearing life jackets.

(2) Equipment, work tools and other facilities

Inspect the equipment, work tools and other facilities, prohibit use when any defect or non-compliance is found, reinspect when a repair or replacement is completed.

(3) Diving workboats

(a) Inspect workboats and rescue boats;

(b) Display the international maritime diving signal flag and display signs and lights as necessary on the workboat;

(c) Securely anchor the workboat to the seabed; and

(d) Stop the engine during Diving Operation.

(4) Diving Operation site

(a) Provide signs including red flags, buoys and notices to demarcate the Diving Operation site; and

(b) Install a downline with depth indication marks at 3m intervals from the workboat to the sea bed at the Diving Operation site to act as a guideline for descending or ascending and as a guide for transfer of tools and equipment.

(5) Diving Equipment

(a) Check the diving equipment to be carried by the Divers:

(i) For ~~surface-supplied air diving~~ Surface-Supplied Air Diving, (JC283) check

for example: air connections, compressed air supply, weight belt, voice or video, communication device, torch, watch, water depth gauge, knife and the like.

(ii) For SCUBA Diving, (JC283) check for example: first stage, second stage and spare regulators, available air volume, secondary air supply, buoyancy control device, weight belt, tank straps, air valve, (JC284) communication device, watch, water depth gauge, knife and the like.

JC284:1 次 Regulator とは異なるものでしょうか。

Is “air valve” different form first stage regulator?
NK: To MD, please advise about this inquiry.

(b) Check that the downline is secure and tight;

(c) Ensure as a minimum, that a two-way voice or video communication link is set up and working ~~between~~ (JC283) at least between a single selected working Diver and the DPIC at the surface control point; and

If any defect is identified by the above checks, prohibit the Diving Operation from commencing.

JC283: deleted and revised.

10.6.2 Measures during Diving Operations

The Contractor shall take the following safety measures during each Diving Operation:

(1) A designated member (or members) of the workboat crew shall assist the DPIC by ~~acting as tenders for~~ observing the Diving Operations of all Divers throughout all Diving Operation and inform the DPIC when Divers are carried away by currents and their location when they surface after their dive ascent. (JC285)

JC285: modified.

(2) A designated member (or members) of the workboat crew on the workboat shall also keep a look-out for any other vessels that may approach the Diving Operation site.

The designated member(s) shall alert any other vessels related or not related with the Diving Operations with requisite warning blasts from the workboat’s siren, loudhailer, flares and/or flags, etc. in order to prevent them from approaching and entering the Diving Operation site.

(3) Measures for the Divers

(a) Prohibit the Dive Team from commencing any Diving Operation without the DPIC and the complete Dive Team present, ready and equipped;

(b) Ensure that the Divers use the ladders for entering and exiting the water for the Diving Operation;

(c) Ensure that Divers use the downline for descending and ascending;

(d) Maintain constant voice or video communication through the provided link; and

(e) Ensure that the Divers constantly communicate with each other by hand signals and slate messaging.

(4) Ensure the DPIC or a Dive Team member at the surface, constantly observe the weather and marine conditions and there is any change that meets the work stop criteria, or if the conditions are considered to be otherwise unsafe by the DPIC, immediately stop the Diving Operation and ensure that the Divers are removed from the water in a safe and controlled manner.

(5) Safety and Health Management of Diving Operations

(a) Manage the Diving Works for each Diver so the Diver takes sufficient and safe surface time between dives ~~so that there is no risk~~ to maintain his health and wellbeing; (JC286)

JC286: revised.

(b) Ensure that sufficient numbers of Divers and standby Divers are available to ensure that Divers are not in the water for excessive periods;

(c) Ensure that each Diver keeps an accurate record of his dive profile for every dive, showing overall time, bottom time and depth, decompression times and depths and that these are summarised by the Diver with a record of the number of dives on a daily, weekly and monthly basis;

(d) Ensure that the DPIC reviews and approves such records and that same are submitted by the DPIC to the HSO for the HSO's review and countersignature and made available for the Engineer's inspection; and

(e) Unless otherwise required by the Law, the Contractor shall retain all dive records for the periods specified in the10.7.2

10.7 DIVING ACCIDENT RESPONSE PLAN

10.7.1 General

The Contractor shall prepare an Accident Response Plan for the Diving Works in accordance with JSSS 1.24 [*Accident Response Plan*].

10.7.2 Provisions by the Contractor

The Contractor shall comply with following requirements prior to Diving Works.

(1) In accordance with the requirements of OSHA 1910.423(c) [*Recompression facility*], the Contractor shall make a recompression/decompression chamber available at the dive location to treat decompression sickness.

(2) The Contractor shall provide any additional recompression/decompression equipment and medical support facilities as necessary to ensure the health and safety of any members of the Dive Team that may require treatment for decompression sickness and other dive related conditions.

(3) The Contractor shall provide rescue and safety equipment, an emergency aid contact list, a first-aid kit and supplies. The rescue and safety equipment including decompression facilities, first-aid kit and supplies provided at the dive location shall be appropriate for the Diving Works and approved by a physician. When used in a decompression chamber or bell, the first-aid kit and any medication shall be suitable for use under hyperbaric conditions. (JC287)

(4) The HSO and DPIC shall ~~determine whether~~ secure that (JC287)the recompression/decompression chamber, any additional recompression/decompression equipment, medical support facilities, rescue and safety equipment, emergency aid list, and first-aid kit are complete and available at the dive location.

JC287: revised and added.

黄色網掛部分:NK の対応説明一覧表に記載の部分です。最終案の作成のため、貴機構からの最終指示(NK の提案への合意、又は規定変更等の指示)をお願い致します。コメント欄の番号は、別紙 A2 の一覧表の番号です。

For Final by JICA/NK

JICA STANDARD SAFETY SPECIFICATION FOR PROJECT IMPLEMENTATION UNDER JAPANESE ODA

Japan International Cooperation Agency (JICA)

27th August 2020

Prepared: DCI for NK
Issue: FR2
Date: 27/08/2020

ACKNOWLEDGEMENTS

JICA have referred to other publications during the preparation of this document and parts of such other publications have been used in the preparation hereof. JICA acknowledges and gives credit to these sources/publications which include:

1) Japanese Acts, Orders and Ordinances including:

Industrial Safety and Health Act

Order for Enforcement of Industrial Safety and Health Act

Ordinance on Industrial Safety and Health

Safety Ordinance for Cranes

Ordinance on Safety and Health of Work under High Pressure

Ordinance on Prevention of Anoxia, etc.

Ordinance on Prevention of Hazards Due to Dust

Explosives Control Act

Order for Enforcement of Explosives Control Act

Ordinance on Explosives Control

2) OSHA Standards as written in Code of Federal Regulation (29 CFR) and published by the Occupational Safety and Health Administration, U.S. Department of Labor.

3) Construction (Design and Management) Regulations 2015, published by the UK Health and Safety Executive.

4) Conditions of Contract for Construction for Building and Engineering Works Designed by The Employer (Multilateral Development Bank Harmonised Edition June 2010) published by Fédération Internationale des Ingénieurs-Conseils (FIDIC)

コメントの追加 [SS1]: 別紙 A1 の一覧表の番号 No.1 です。

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JICA STANDARD SAFETY SPECIFICATION (JSSS)

Table of Contents

CHAPTER 1: GENERAL REQUIREMENTS

1.1 SAFETY DECLARATION

1.1.1 Adopting the slogan "SAFETY FIRST", the Contractor shall proactively aim to achieve "Zero-Accident" by applying the highest achievable standards of health and safety management.

1.1.2 A Safety Declaration shall be submitted with the Bid, declaring the Bidder's commitments and obligations, in accordance with JSSS Annex 1.3 [*Additional Contractor Forms*], Form JSSS/BSD - Bidder's Safety Declaration.

1.2 GENERAL REFERENCE NOTES

1.2.1 For Definitions, abbreviations and standards contained in JSSS, refer to JSSS Annex 1.1 [*Definitions and Abbreviations*].

1.2.2 The following further general reference notes apply to the content of JSSS:

(1) References to "Bid" and "Contract" and to "Bidder" and "Contractor" shall be interchangeable according to the context of their use. "Bid" and "Bidder" shall become "Contract" and "Contractor" after the Contract Agreement has been executed.

(2) References to "Laws of the Country" shall include all safety standards under such Laws and shall also include references to Laws of any other jurisdiction that may be stated in the Contract Data.

コメントの追加 **[SS2]:** No. 2

(3) Any reference to "Safety" unless otherwise evident from the text shall also be construed as reference to "Health and Safety".

(4) Any reference to academic, educational or vocational qualification within this document, shall mean a valid qualification demonstrated by a certified true copy of a diploma, degree, or other official certification issued by an acknowledged educational institution of the Country or an equivalent alternative certification issued by an acknowledged educational institution of another country.

(5) Unless otherwise stated in JSSS, any reference in JSSS to the Site, shall also be deemed to include other places (if any) where the Contractor intends to execute or is executing the Works including for example offsite storage, fabrication and assembly areas and any other working areas outside the Site boundary.

(6) JSSS requires the provision of safety management services and facilities by the Contractor to Contractor's Personnel and unless otherwise stated this shall also be deemed to include the provision by the Contractor of the same services and facilities (including for example training, accident response, healthcare, provision of PPE, records, reports, control of hazards and risks, use of Temporary Works, and the like) to any Subcontractors, suppliers and others for whom the Contractor is responsible including Employer's Personnel and all other persons that are entitled to be on the Site.

コメントの追加 **[SS3]:** No. 3

(7) Any reference in JSSS to "relevant authority" or "relevant authorities" shall mean one (1) or more legally constituted public authorities that own or have legal jurisdiction over the work or property concerned.

(8) JSSS shall form a part of the Contract for the Works and therefore the definitions contained in the Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer, Multilateral Development Bank Harmonised Edition June 2010, General Conditions together with the Particular Conditions Part A - Contract Data and Part B - Specific Provisions, as applied to that Contract, apply equally and are used in JSSS.

Unless specified otherwise or instructed by the Engineer, the issue of JSSS to be used for the Contract shall be that which is applicable at the Base Date.

1.3 INCORPORATION OF JSSS INTO THE CONTRACT

1.3.1 JSSS shall form a part of the Safety Specification which, in turn forms a part of the Specification. The Safety Specification shall have priority over the other parts of the Specification in respect of health and safety matters. Within the Safety Specification, the Particular Safety Specification shall have priority over JSSS.

1.3.2 The Annexes to JSSS 1: General Requirements shall be read and construed as an integral part of JSSS.

1.4 COMPLIANCE WITH JSSS AND OTHER REGULATIONS

1.4.1 JSSS specifies the minimum health and safety requirements to be complied with by the Contractor throughout the execution of the Works.

1.4.2 JSSS shall not limit the Contractor's statutory or regulatory duties and responsibilities under the Laws of the Country and/or the specific health and safety requirements of the Contract.

1.4.3 The Contractor shall comply fully with the requirements of the Safety Specification.

1.4.4 If there are no or insufficient safety provisions in the Laws of the Country, in JSSS or in the Particular Safety Specification for the particular part of the Works, the Contractor shall propose suitable internationally acceptable safety regulations for the Engineer's consent.

1.4.5 Specified Standards

(1) Unless otherwise instructed by the Engineer, a reference to any standard (hereinafter deemed to include specified safety regulations or codes) shall mean a reference to the latest issued edition of that standard as at the Base Date.

(2) Standards specified in JSSS can be substituted with an equivalent alternative in following manner;

(a) The Contractor submits a formal request with particulars to the Engineer, and

(b) The Engineer gives a consent to the substitution,

(c) only if he considers such alternative is internationally acceptable and equivalent or higher than the standard in JSSS.

(3) Application of detailed parts of any standards specified in JSSS may be waived at the formal request of the Contractor, only if the Contractor justifies with supporting particulars that those detailed parts are not relevant to the Contract and the Engineer gives his consent to such Contractor's request.

(4) Where JSSS refers to the standards of other countries, such reference is only to the technical requirements contained in such standards and not to any related Laws or legal enforceability of any of those countries.

コメントの追加 **[SS4]:** No. 4

1.4.6 Where there is any reference to OSHA and unless otherwise evident from the text, the words "team leader", "supervisor", "supervision", "superintendent" and the like shall be collectively construed as reference to the appropriate member of the Contractor's Personnel. Any reference to the "safety and health manager of the Contractor" and the like shall be construed as reference to the HSO and "The construction plan and safety and health plan", shall be construed as the "Method Statement" and "Safety Plan", respectively.

1.4.7 If any ambiguity or discrepancy is found in or between the various Chapters of JSSS or any reference documents and JSSS, the Engineer shall issue any necessary clarification or instruction. For the purposes of interpretation:

(1) The requirements of JSSS 1: General Requirements, shall prevail over the requirements of other Chapters of the document.

(2) JSSS 2 to 6 contain requirements which are of general application and the content of each shall apply to content of all others unless otherwise stated or unless the context is

otherwise clear.

1.4.8 Unless otherwise stated in JSSS or in the Particular Safety Specification, the Contractor shall comply with the requirements of JSSS throughout the execution of the Contract.

1.4.9 The Contractor shall fully inform his personnel, his Subcontractors, suppliers and consultants and all other parties who are associated with the Works of the existence, content, purpose and objectives of JSSS.

1.5 CONTRACTOR'S SAFETY MANAGEMENT SYSTEM

1.5.1 The Contractor shall institute a health and safety management system in accordance with ISO 45001.

1.5.2 Alternatively, the Contractor may institute his own safety management system and regularly conduct audits in accordance with JSSS 1.17 [*Compliance Monitoring and Auditing*].

1.5.3 The safety management system shall be proposed as a part of the Contractor's Safety Plans to the Engineer for his consent.

1.6 CHECKING AND VALIDATION OF SUBMISSIONS

1.6.1 The Contractor shall demonstrate that his internal procedures for checking and validation of all submissions properly function through written confirmation and signature of each of the Contractor's responsible personnel, including for example the Contractor's Representative, HSO, Temporary Works coordination, design and supervision staff and any independent checkers as appropriate. This requirement relates to all submissions for the safety, including Safety Plans, Method Statements, Temporary Works (such as drawings, designs and calculations) and of all supporting documents.

1.7 CONTRACTOR'S SAFETY PLANS

1.7.1 The Contractor shall prepare Safety Plans for the Works showing the Contractor's proposed health and safety management policies, systems and plans specifically prepared for all parts of the Works.

1.7.2 The Safety Plans shall set out or refer to all the health and safety requirements:

(1) That are stated in JSSS.

(2) That comply with the Contractor's health and safety obligations under the Laws of the Country and the Contract.

(3) That are necessary to effect and maintain a healthy and safe working environment for all Contractor's Personnel.

1.7.3 The Contractor shall be required to prepare and submit the Safety Plans principally at three (3) stages:

(1) Bid Stage Safety Plan (Outline Overall Safety Plan).

(2) Baseline Safety Plan (Updated Bid Stage Safety Plan).

(3) Particular Safety Plans (Separate plans if necessary for particular parts of the Works).

コメントの追加 **[SS5]:** No. 5

コメントの追加 **[SS6]:** No. 6

1.7.4 The Safety Plans shall ultimately provide an accurate and comprehensive description of the Contractor's arrangements to ensure that health and safety management is maintained at a high level.

1.7.5 Submission of any Safety Plan and inclusion in the Bid or Contract or any further submission to the Engineer, shall not place any limit upon the Contractor's obligations. Any additional requirements as determined by the Contract or consequent to instructions of the Engineer or by requirements at the Site, shall be complied with by the Contractor under his own responsibility.

1.7.6 Bid Stage Safety Plan:

(1) This shall be an outline plan, containing indicative content for all of the subjects listed in JSSS Annex 1.2 [*Content of Bid Stage Safety Plan*].

(2) The plan shall demonstrate that the Bidder has a clear understanding of the health and safety requirements for the Works and contain clear and sufficient detail of each item to indicate the Bidder's intentions, so that this can be understood and properly evaluated.

1.7.7 Baseline Safety Plan

(1) This shall be submitted within twenty-eight (28) days after the Commencement Date and before commencing any work at the Site.

コメントの追加 **[SS7]:** No. 7

(2) This shall be an updated Safety Plan for the whole of the Works showing the Contractor's proposed health and safety management policies, systems and plans etc. specifically prepared for all parts of the Works.

(3) This shall be based upon the Bid Stage Safety Plan, further developed as necessary by the HSO to provide a comprehensive overall Safety Plan demonstrating the Contractor's intended compliance with the Contract.

1.7.8 Particular Safety Plans

(1) These shall be prepared as necessary to suit changing circumstances or conditions at the Site, or following the issue of Method Statements, or where considered necessary by the HSO or when required by the Engineer.

1.7.9 Procedures for Submission and Review

(1) The Contractor shall submit the Baseline Safety Plan and the Particular Safety Plans showing details of the health and safety arrangements which the Contractor proposes to adopt for the execution of the Works or any part of the Works.

(2) The Contractor shall submit:

(a) The Baseline Safety Plan in accordance with JSSS 1.7.7 [*Baseline Safety Plan*]; and

(b) The Particular Safety Plans by the date fourteen (14) days prior to the commencement of each particular part of the Works where sufficient detail has not been included in the Baseline Safety Plan and/or within fourteen (14) days after the date of the Engineer's request.

(3) Requirements for response (if any) by the Engineer and any re-submission by the Contractor and, shall be as follows:

(a) The Engineer may review the Safety Plans and may give notice of non-compliance to the Contractor stating the extent to which the Safety Plan does not comply with the Contract. Within fourteen (14) days after receiving any such notice the Contractor shall rectify any non-compliance and resubmit to the Engineer; and

(b) If the Engineer gives no such notice of non-compliance for the original Safety Plan within twenty-one (21) days of the date of receipt or for the resubmitted within fourteen (14) days of receipt, the Contractor shall proceed in accordance with the Safety Plan subject to complying with his other obligations under the Contract.

1.7.10 The Contractor shall maintain records and make reports in accordance with JSSS and the applicable health and safety regulations, and further comply with any reasonable requests by the Engineer (if any).

1.7.11 Compliance with the Safety Plan and JSSS shall not relieve the Contractor from any duty, obligation or responsibility under or in connection with the Contract.

1.7.12 The Contractor shall also consider the opinions of his workers in preparing Safety Plans or updated Safety Plans.

1.8 RISK ASSESSMENT

1.8.1 In performing risk assessments, the Contractor shall find and correct all potential risks and hazards primarily by trying to eliminate or reduce such risks and hazards through making feasible changes in working conditions rather than relying on PPE.

1.8.2 The Contractor shall fully inform Contractor's Personnel of hazards and risks on the Site.

1.8.3 The procedural flow of risk assessment shall be as follows.

(1) Identifying hazards.

(2) Evaluating risks.

(3) Determining measures of risk reduction or elimination.

1.8.4 The procedural flow for risk reduction measures shall be as follows with earlier listed items having higher priority:

(1) Removal of hazards such as eliminating dangerous methods of construction.

(2) Changing to a safer construction method and alternating to low risk processes, operations, materials or equipment.

(3) Engineering measures.

(4) Management measures including improving skills with additional training.

(5) Use of PPE.

1.9 CONTRACTOR'S METHOD STATEMENTS

1.9.1 The Contractor shall prepare Method Statements for all parts of the Works with details of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works.

1.9.2 Method Statements shall be developed taking account of the results of risk assessment in accordance with JSSS 1.8 [*Risk Assessment*] and include details of all Permanent Works and Temporary Works with supporting documents such as:

(1) Studies, investigations and designs.

(2) Structural calculations and any other calculations.

(3) Specifications and technical details.

(4) Proposed construction procedure, sequence and method.

(5) Construction resources including superintendents, workers, Operation Leaders and Contractor's Equipment.

(6) Inspection and monitoring plan.

1.9.3 The Contractor shall demonstrate in the Method Statements that he has put internal procedures in place to encourage the systematic approach to performing the Works in an efficient, safe and environmentally compliant manner.

1.9.4 The Contractor shall submit Method Statements showing details of the arrangements and methods which the Contractor proposes to adopt for the execution of any part of the Works. Whenever the Engineer requires further information, the Contractor shall submit the required information within fourteen (14) days of the request.

1.9.5 Requirements for submission by Contractor and response (if any) by the Engineer to Method Statements, shall be as follows:

(1) The Engineer may review the Method Statements and may give notice of non-compliance to the Contractor stating the extent to which the Method Statements do not comply with the Contract. Within fourteen (14) days after receiving any such notice the Contractor

コメントの追加 **[SS8]:** No. 8

shall rectify any non-compliance and resubmit to the Engineer.

(2) If the Engineer gives no such notice of non-compliance for the original Method Statement within twenty-one (21) days of the date of receipt or for the resubmitted within fourteen (14) days of receipt, the Contractor shall proceed in accordance with the Method Statement.

(3) The Contractor shall submit a revised Method Statement whenever required by the Engineer or when any previous Method Statement for any part of the Works is inconsistent with actual conditions or requirements prevailing at the Site.

(4) The Method Statement shall be revised as necessary by the Contractor or the HSO and each revision shall be submitted promptly to the Engineer.

1.10 ENGINEER'S SAFETY REPRESENTATIVE

1.10.1 The Engineer may delegate his power and authority to any of his assistants at the Site who shall act as the Engineer's health and safety representative for the purpose of complying with any health and safety obligations under JSSS.

1.10.2 The terms of the appointment shall be in accordance with GC 3.2 [*Delegation by the Engineer*].

1.10.3 Whenever the term "Engineer" is used in JSSS this shall be deemed to include the resident engineer or any other assistant of the Engineer if so appointed in accordance with the terms of their delegated authority.

1.11 SAFETY COMPLIANCE INSTRUCTIONS FROM THE ENGINEER

1.11.1 Without affecting or diminishing the Contractor's responsibility under GC 4.1 [*Contractor's General Obligations*] and to ensure the adequacy, stability and safety of all Site operations and of all methods of construction, the Engineer shall observe the Contractor's performance at the Site and if in his opinion the Contractor is failing or has failed to carry out any part of the Works in accordance with the Safety Plan or other health and safety requirements of the Contract, the Engineer may give notice and instruct the Contractor to take necessary corrective and preventive measures to comply with the Contract.

1.11.2 If any part of the Works is considered by the Engineer to pose a danger and which in his opinion could result in an accident, the Engineer may instruct the Contractor to suspend such part of the Works under GC 8.8 [*Suspension of Work*] until the Contractor has advised the Engineer of the proposed corrective and preventive measures, obtained the Engineer's consent and implemented such measures to ensure that such danger is eliminated.

1.11.3 If an accident has occurred, the Engineer may instruct the Contractor to suspend the Works or any part of the Works under GC 8.8 [*Suspension of Work*] and not allow work to recommence until such time as:

(1) All circumstances have been investigated and the cause of the accident has been established by the HSO.

(2) Corrective and preventive measures have been formulated by the HSO and proposed to the Engineer.

(3) The Engineer's consent has been obtained for such measures.

(4) The measures have been implemented to ensure that no such accident can reoccur.

1.11.4 The actions arising as above shall be deemed to be the responsibility of the Contractor irrespective of the issue of any action or instruction by the Engineer.

1.12 HEALTH AND SAFETY OFFICER AT THE SITE (HSO)

1.12.1 Requirements for the HSO:

(1) The Contractor shall assign the HSO at the Site on or before the Commencement Date.

コメントの追加 **[SS9]:** No. 9

コメントの追加 **[SS10]:** No. 10

コメントの追加 **[SS11]:** No. 11

(2) The Contractor shall ensure that the Contractor's Personnel respect instructions issued by HSO in the health and safety aspects.

(3) If the named person is for any reason unavailable or if the appointed person fails to act as HSO and is removed from the Site, the Contractor shall submit the name and particulars of a suitable and equally experienced and qualified replacement to the Engineer for his consent.

(4) The HSO shall be an employee of the Contractor or a specialist health and safety consultant and unless otherwise specified in the Particular Safety Specification, the HSO shall be assigned full time upon the Works.

(5) The Contractor shall not revoke the appointment of the HSO or appoint a replacement without the prior consent of the Engineer.

(6) The HSO shall, where possible, be fluent in the ruling language of the Contract and also the language for communications stated in the Contract as defined in GC 1.4 [*Law and Language*]. It is acceptable for the HSO to use a translator for either or both of these languages.

(7) The HSO shall possess appropriate educational qualification for such position and (if so required by the Laws of the Country) shall be licensed or registered in the Country and perform such duties as are legally mandated.

(8) Where there is no requirement under the Laws of the Country the HSO shall have appropriate academic, educational or vocational qualification such as:

(a) An International Diploma issued by the National Examination Board in Occupational Safety and Health (NEBOSH) in UK; or

(b) A certification as a Certified Safety Professional (CSP) by the Board of Certified Safety Professionals (BCSP) in USA; or

(c) An equivalent alternative internationally recognised qualification covering health and safety and risk management.

(9) Unless otherwise specified in the Particular Safety Specification, the HSO shall have minimum five (5) years' work experience in the construction industry of which minimum two (2) years shall be in health and safety management.

(10) The HSO shall be a person that the Contractor considers is qualified, experienced and able to perform the duties competently and his appointment shall be subject to receiving the consent of the Engineer.

1.12.2 Supporting Personnel

(1) The Contractor shall also appoint such further supporting personnel as the HSO may from time to time deem necessary or as may be instructed by the Engineer, to permit the HSO to perform his duties.

(2) Such further supporting personnel may include Operation Leaders and/or other senior specialist and qualified Contractor's Personnel.

(3) Irrespective of any such appointment the HSO shall remain singularly responsible for the actions of such supporting personnel in terms of health and safety management.

(4) Any reference in JSSS to the HSO performing inspections or the like for the health and safety aspects of any parts of the Works, shall be understood to include any inspections performed by any of these supporting personnel on behalf of the HSO and for which the HSO shall remain responsible.

(5) The HSO shall prepare an internal procedure for the management of his supporting personnel, to ensure that:

(a) Supporting personnel are made aware of the requirements for any inspection and the details thereof;

(b) Supporting personnel immediately advise the HSO of any unsafe conditions with recommendations to prohibit the start or to stop or to change safety practices for the particular work; and

(c) Communications and submissions between HSO and supporting personnel are efficient, timely and clear.

Following implementation and compliance with the above procedure, the HSO shall sign all inspection records as if the inspection has been carried out by the HSO.

(6) Where the Works or any part of the Works is to be performed in shifts or in excess of normal working hours, or over an extensive working area or where major works are being undertaken simultaneously, or like circumstances, the Contractor shall appoint additional qualified supporting personnel for the HSO all as necessary to ensure that the HSO is always able to perform his duties efficiently and effectively and so that health and safety management is not adversely affected.

1.12.3 Inspections

(1) The HSO shall be responsible for ensuring:

(a) That all working areas are inspected on a regular basis (at least once every working day or as otherwise required by JSSS) to detect if any unsafe practices, works or conditions exist and that all required safety measures are in place;

(b) That if such unsafe practices, works or conditions are found to exist, then to immediately issue instructions to all affected persons and immediately implement corrective measures in cooperation with such personnel or if this is not possible then to temporarily stop all construction activity on that part of the Works until such corrective action has been taken; and

(c) That all inspection requirements of JSSS are complied with including the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

(2) Any site inspections attended by the HSO, may also include the attendance of the Engineer at the option of the Engineer.

1.13 HSO - SCOPE OF DUTIES AND AUTHORITY

1.13.1 The HSO shall devote his full time and attention to maintaining health and safety upon the Works and protecting against accidents.

1.13.2 The particular scope of duties and authority of the HSO shall cover (but shall not be limited to) the following:

(1) Preparation and submission of Safety Plans, implementation, evaluation, improvement and revision thereof.

(2) Preparation of monthly schedule of health and safety management activities, informing the Contractor's Personnel.

(3) Regular (daily) inspections of the Works at the Site to ensure the Contractor's compliance with the Safety Plan.

(4) Temporarily stopping the Works or any part of the Works following any accident or where the HSO considers it unsafe to continue or where there is unsafe behaviour or practices of the Contractor's Personnel or any non-compliance with the Safety Plan.

(5) Temporarily stopping the Works or any part of the Works where the Engineer so instructs in accordance with JSSS 1.11 [*Safety Compliance Instructions from the Engineer*].

(6) Investigating accidents, establishing cause, formulating and implementing preventive measures to avoid risk and prevent reoccurrence.

(7) Preparing proposals, reporting and consulting with the Engineer, especially when an accident occurs or any risk or hazardous situation is likely.

(8) Instructing Operation Leaders in the health and safety aspects of their work including requirements for inspection and confirmation of results to HSO.

(9) Instructing the Contractor's Personnel to take improvement measures for maintaining health and safety and preventing accidents.

(10) Assisting with the selection and assignment of workers and other Contractor's Personnel, including ascertaining the physical and mental health, age and capability in consideration of the nature of work to be carried out.

(11) Planning and implementation of various training and education implementation plans.

(12) Creating and implementing procedures for monitoring and maintaining accident and safety statistics, including fatalities, lost time records and near-miss cases.

(13) Preparing regular internal and external reports on health and safety activities.

(14) Hazard prediction activity.

1.14 PROCEDURE FOR RESUMING THE WORKS

1.14.1 If the Engineer has issued an instruction under JSSS 1.11 [*Safety Compliance Instructions from the Engineer*] or if the HSO has temporarily stopped the Works or any part of the Works in accordance with JSSS 1.13 [*HSO - Scope of Duties and Authority*], then, unless otherwise instructed by the Engineer, the procedure for resuming the Works or any part of the Works, shall be as follows:

コメントの追加 **[SS12]:** No. 12

(1) The Contractor (represented by the HSO) shall investigate and establish the cause, formulate preventive measures to ensure that the risk is avoided and accident cannot occur/reoccur.

(2) The Contractor (represented by the HSO), shall prepare and submit his proposal describing the investigation, cause and preventive measures to the Engineer.

(3) The Engineer may review the Contractor's proposal and may give notice of non-compliance to the Contractor stating the extent to which the proposal does not comply with the Contract. Within seven (7) days after receiving any such notice the Contractor shall rectify such non-compliance and resubmit to the Engineer.

(4) If the Engineer gives no such notice of non-compliance for the original proposal within seven (7) days of the date of receipt or for the resubmitted proposal within seven (7) days of receipt, the Contractor shall resume the Works or part thereof in accordance with the proposal by giving three (3) days' notice in writing of the resumption date.

To be proactive, the Engineer may give consent at any stage within the above stated time scales.

(5) The Contractor resumes the Works or part of the Works on the due date.

(6) The Contractor verifies the effectiveness of the preventive measures and informs the Engineer.

(7) The Contractor carries out a risk assessment and revises the Safety Plan and Method Statements as necessary.

1.15 CONTRACTOR'S SAFETY MANAGEMENT ACTIVITIES

1.15.1 The Contractor shall faithfully implement the Safety Plan performing all necessary management activities to ensure total compliance.

1.15.2 In addition to the tasks of the HSO described above, the Contractor's health and safety management activities shall include (but are not limited to):

(1) Overall Safety Management Activities:

(a) Instruction on safety matters in the Toolbox Meetings (TBM);

(b) Pre-work meetings, pre-start meetings, schedule meetings and other internal meetings; and

(c) Monitoring the implementation of the Safety Plan.

(2) Daily Safety Management of Contractor's Personnel:

(a) Instruction and management on health and safety at general morning meetings, pre-work meetings, TBM;

(b) Providing specific advice and instructions to all Contractor's Personnel on their assigned work tasks in advance of starting so that all workers are aware of the requirements of the Method Statements and Safety Plan including work place, scope, methods, PPE, timing and safety procedures;

(c) Instruction and management of traditional Japanese cleanliness safety campaigns known in Japan as:

5S ACTIVITIES where: Seiri = sorting, Seiton = tidying, Seiso = cleaning, Seiketsu = cleanliness and Shituke = discipline;

(d) Instruction and management of safety education and training;

(e) Instruction and management of all safety measures; and

(f) Site Safety Inspections.

1.16 JOINT SITE SAFETY INSPECTIONS

1.16.1 In addition to the HSO's own daily Site Safety Inspections, the HSO shall conduct regular Joint Site Safety Inspections with the Engineer. Respective safety staff may also attend.

コメントの追加 **[SS13]:** No. 13

1.16.2 Frequency of Joint Site Safety Inspections shall be at least once a week.

1.16.3 Where any safety risks are detected during the inspections, the Contractor shall take immediate action.

1.16.4 The Engineer may be invited or may choose to participate in the Contractor's daily site safety inspections which will then be deemed to be a Joint Site Safety Inspection.

1.16.5 The Contractor shall prepare a report of each Joint Site Safety Inspection and submit this to the Engineer within seven (7) days after the inspection. A further copy shall be included in the Contractor's monthly progress report.

1.17 COMPLIANCE MONITORING AND AUDITING

1.17.1 The HSO shall develop and implement systems to ensure that compliance with the Safety Plan is ensured. Such compliance shall be monitored efficiently and transparently at all times, for which purpose the Contractor shall:

(1) Create checklists for monitoring.

(2) Carry out regular and random inspections.

(3) Analyse unsafe or non-compliant conditions and determine the effective measures in ensuring safety and minimising accidents.

コメントの追加 **[SS14]:** No.14

(4) Create storage and filing systems for the monitoring records.

(5) Copy safety information to the Engineer as may be necessary for the Engineer's file if so requested by the Engineer.

1.17.2 Safety inspections are intended to search for risks and hazards which present a threat to safe working.

1.17.3 The Contractor shall also carry out regular health and safety audits, to ascertain if the Contractor's Safety Plan and health and safety management systems are working by focussing basically on the following five questions:

(1) Does the Safety Plan cover all regulatory and construction industry best practice requirements?

(2) Are the Safety Plan requirements being met?

(3) Is there documented proof of compliance?

(4) Is health and safety training effective?

(5) Is the Contractor's health and safety management system working effectively?

1.17.4 The persons or team designated to conduct the audits should take a fact-finding approach to gather data and members shall be familiar with the Safety Plan and the nature of the Works.

1.17.5 The audit procedures shall be prepared by a senior member of the Contractor's head office health and safety section and shall require the consent of the Engineer.

1.17.6 The audit shall be headed by a senior member of the Contractor's head office health and safety section.

1.17.7 Audits may be outsourced by the Contractor to a health and safety company subject to obtaining the consent of the Engineer.

1.17.8 The HSO may attend audits but only in an advisory capacity.

1.17.9 The Contractor shall invite the Engineer to attend in the capacity of a witness ensuring that the audit is being carried out effectively and with a balanced, fair and non-biased approach.

1.17.10 The health and safety audits are primarily to check the effectiveness of the Safety Plan, the Contractor's health and safety personnel and the Contractor's health and safety management systems. The Audits shall not replace the regular health and safety inspections.

1.17.11 The audits shall be conducted at least twice every year and without giving notice to the Contractor's Personnel or others when any audit is to take place.

1.17.12 An audit report shall be prepared by the leader of the audit team, detailing the findings of the team and submitted to the HSO, with a copy to the Engineer within seven (7) days after the audit. The report shall be signed by all attendees of the Contractor to certify their agreement to the content and to any recommendations for improvement.

1.17.13 The HSO shall analyse the findings of the audit, revise the Safety Plan and change health and safety management practices as necessary to ensure the required improvement. The Engineer shall be fully informed of all such revisions and changes.

1.18 PROPER PLACEMENT OF CONTRACTOR'S PERSONNEL

1.18.1 To a varying extent, many types of construction works are inherently dangerous and accordingly the Contractor under his duty of care must ensure that risks arising from all such potential dangers are avoided and Contractor's Personnel consequently protected.

1.18.2 In compliance with GC 6.9 [*Contractor's Personnel*], the Contractor shall assign only those personnel who are appropriately qualified, skilled and experienced in their respective trades or occupations. Contractor's Personnel shall also be suitable and capable of performing the work tasks for which they are selected in consideration of their physical fitness, mental condition, age and capability, all shall be equipped with correct PPE, tools, equipment and safety equipment.

1.18.3 Workers and unskilled workers shall never be assigned to any work on Site on their own, all

shall be assigned in groups and each work group must always include an Operation Leader to ensure compliance with the Contractor's safety regulations.

1.18.4 The correct grades and numbers of Contractor's Personnel shall be assigned to respective work tasks and reasonable times and durations and support facilities shall be afforded by the Contractor to promote the safe and effective discharge of duties.

1.18.5 The HSO shall countersign all records to certify his confirmation that each member of the Contractor's Personnel is appropriately qualified, skilled and experienced in their respective trades or occupations prior to their placement. These records shall be made available for inspection by the Engineer.

1.18.6 Suitability of Contractor's Personnel and their work assignment shall be assessed by the Contractor with the assistance of the HSO in consideration of:

(1) Work content and work environment.

(2) Educational or vocational qualifications, practical experience, skill training and eligibility for category, title, rank or position by virtue of their achieved and demonstrated capability.

(3) Physical and mental health condition upon commencement of employment and on a regular basis before daily work starts.

(4) Allocation of an achievable and safe work volume and time.

(5) Allocation of suitable work to older workers and also to workers under 18 in compliance with GC 6.21 [*Child Labour*].

1.18.7 If the Laws of the Country require operating, supervising or management staff or any other Contractor's Personnel to have a licence, particular academic, educational or vocational qualification, diploma, registration or certification for any of their services or operations at Site, the Contractor shall ascertain that all such Contractor's Personnel possess such documents.

1.18.8 The Contractor shall ascertain the authenticity and validity of licenses and all other documentation for Contractor's Personnel and if necessary shall independently test all personnel to ascertain that they do possess sufficient knowledge, academic, educational or vocational qualification, experience and skills.

1.18.9 The Contractor shall implement an identification (ID) pass system whereby all Contractor's Personnel carry ID passes with name, photograph, blood type, official ID number and statement of the skill and position for which the worker is qualified and assigned. This shall be clearly displayed by the person and be available for inspection and validation by the Engineer at all times. If any of the Contractor's Personnel is found not to have such valid ID for the position upon which he is assigned, the Engineer will instruct that person directly to stop work immediately, contact the HSO immediately and instruct that the HSO resolves the situation without delay by immediately removing the offending person from the particular work being undertaken and assigning a suitable replacement, unless otherwise instructed by the Engineer.

1.19 SAFETY TRAINING GENERALLY

1.19.1 The Contractor shall conduct health and safety education and training for all the Contractor's Personnel.

1.19.2 The Contractor shall describe in the Safety Plan the outline of the health and safety training plans describing participants, time, teaching materials, policy for selecting trainers, etc. In addition, the Contractor shall submit full details of all health and safety training to the Engineer for information before the start of any training.

1.19.3 Training shall be provided free-of-charge to all participants and conducted during normal working hours, all trainees shall be paid their normal wages during training and the Contractor shall bear all necessary associated costs and expenses.

1.19.4 Training shall be provided in a language which the persons to be trained fully understand (i.e. the language of the persons to be trained or the language for communications as defined in GC 1.4 [*Law and language*] as appropriate.

1.19.5 Training Personnel

(1) Trainers (which description shall include teachers and educators also) can be personnel employed by the Contractor or external trainers for whom the Contractor shall remain responsible, all experienced, academically, educationally or vocationally qualified and (if required by the Laws of the Country), formally registered as trainers, teachers and educators.

(2) All trainers shall be fluent in the language to be used in the training. Where necessary, proficient translators familiar with construction safety terms shall be provided by the Contractor.

(3) In case of absence of availability of suitable trainers in the Country, the Contractor shall mobilise personnel from other countries whom the Contractor considers possess the necessary academic, educational or vocational qualification, ability and experience, subject to receiving the advance consent of the Engineer.

1.19.6 Records of Education and Training

The Contractor shall create and maintain records of all trainees, showing full details of training subjects and their capability, achievements etc., and all shall be made available for the inspection of the Engineer.

1.20 SAFETY INDUCTION TRAINING

1.20.1 Safety induction training shall be provided by the Contractor for all Contractor's Personnel, any Subcontractors, suppliers and others for whom he is responsible, including the Employer's Personnel and all other persons who are entitled to be on the Site at the request of the Employer or Engineer.

コメントの追加 **[SS15]:** No. 15

1.20.2 The safety induction training shall include classroom-based training course and practical on-site demonstration, in which the following subjects shall be covered:

(1) Responsible persons, chain of command and means of communication.

(2) Use of Contractor's Equipment, small tools and tackle, machinery, Temporary Works, Goods, materials; potential danger and required care.

(3) Working procedures generally.

(4) Inspections before starting and during execution of any work, reporting unsafe working conditions and equipment.

(5) Dangerous Work; General rules, locations, posting warning signs, precautions and general working requirements. Refer to JSSS 1.22 [*Dangerous Work*] for additional training requirements.

(6) PPE and other safety devices; use, handling and care, reporting worn, damaged or defective equipment.

(7) Maintaining all working areas in an orderly, tidy and clean condition at all times.

(8) Accidents; action, evacuation and treatment, basic first-response medical aid, reporting.

(9) Firefighting; actions, precautions and control.

(10) Health and safety rules.

(11) Causes and prevention of diseases and conditions which may be injurious to health that may occur in relation to the work concerned.

(12) Emergency Response Plan; evacuation and calling list.

(13) Other related health and safety matters.

1.21 SKILL TRAINING

1.21.1 The Contractor shall ensure that all Contractor's Personnel shall be appropriately qualified, skilled and experienced in their respective trades or occupations in accordance with JSSS 1.18.2.

1.21.2 The Contractor is also reminded of his obligations under GC 6.1 [*Engagement of Staff and Labour*] according to which the Contractor is encouraged, to the extent practicable and reasonable, to mobilise the local human resources with appropriate qualifications and experience. However, if the qualified, skilled and experienced Contractor's Personnel required by the Contract is not available in the Country or not available in the numbers or of the standards of for the periods required, the Contractor shall:

(1) Source and assign upon the Works Contractor's Personnel (of at least Operation Leader and skilled worker status) from other countries, and/or

(2) Recruit candidates in the Country and train them to provide the skill required to properly perform their assignments.

This shall be in such numbers and for such periods as are necessary to maintain the required standards of performance, quality, health and safety throughout the execution of the Contract.

(1) The Contractor shall test and qualify such personnel and provide them with formal written confirmation of their training, testing and academic, educational or vocational qualification, with copies provided to the Engineer if so requested by the Engineer.

(2) Outline of such training shall be submitted with the Bid Stage Safety Plan. Details of the training shall be further developed in the Baseline Safety Plan and onward.

(3) Skill Training may be omitted in full or in part for any Contractor's Personnel who, the Contractor has ascertained, hold valid academic, educational or vocational qualification and who are appropriately skilled and experienced in their respective trades or occupations in full compliance with GC 6.9 [*Contractor's Personnel*]. The Contractor shall report the names of any such Contractor's Personnel to the Engineer for his information.

1.21.3 Further Training of Operation Leaders and Skilled Workers

(1) Unless otherwise specified in the Particular Safety Specification and without limiting or changing the Contractor's obligations under the Contract, the Contractor shall be required to select candidates from his local skilled and unskilled workforce that he considers are suitable to act as future Operation Leaders and skilled workers, respectively.

(2) Training of Operation Leaders

(a) The Contractor shall ensure that his personnel work closely with and transfer necessary knowledge and skills via OJT to such candidates to develop their management abilities, skill levels and awareness of international safety and quality standards; and

(b) To compliment the OJT, the Contractor shall provide classroom-based training courses and assign qualified instructors to develop the ability, skills and awareness and also to pass on their knowledge in future to their working colleagues and compatriots.

(3) Training of Skilled Workers

(a) The Contractor shall ensure that his personnel work closely with and transfer necessary knowledge and skills via OJT to such candidates to develop their skill levels and awareness of international safety and quality standards; and

(b) To compliment the OJT, the Contractor shall provide classroom-based training courses and assign qualified instructors to develop the ability, skills and awareness

according to the work and also to pass on their knowledge in future to their working colleagues and compatriots.

(4) The Contractor shall develop the syllabus and teaching hours appropriately and submit details to the Engineer for his information. Wherever appropriate, the syllabus shall also include health and safety training to an international level of appreciation with a general introduction to OSHA and other applicable international safety standards and regulations.

コメントの追加 **[SS16]:** No. 16

1.21.4 Unless otherwise specified in the Particular Safety Specification, the Contractor shall not bring into the Country for use upon the Works any unqualified, unskilled or inexperienced foreign Contractor's Personnel.

1.22 DANGEROUS WORK

1.22.1. Examples of Dangerous Work

For clarity "Dangerous Work" shall also include the following examples:

(1) The delivery, storage and/or use of harmful, dangerous or explosive materials, chemicals, gases or the like to be used in the Works or for use in or which are the product of the manufacturing or treatment process of the finished Works or in Operational Areas.

(2) Welding work, hot cutting work or demolition work.

(3) Work in areas where Contractor's Personnel are already performing work that may become more hazardous if anyone other than authorised personnel enter, for example Scaffolding erection, use and dismantling, and areas where Contractor's Equipment is operating and the HSO considers there to be a risk of any accident.

(4) Work in areas where very hot or cold objects are being handled and/or the working area itself is extremely hot or cold.

(5) Work in areas where there is potential exposure to harmful radiation or ultrasound.

(6) Work in areas where the concentration of gases, dust and any other dangerous or harmful materials exceed the limits specified in JSSS 2.1 [*Work Environment*].

(7) Work in areas where Permanent Works or Temporary Works have not been performed completely or properly and/or which are therefore unsound, unstable or unsafe.

(8) Work in areas under, within or adjacent to existing buildings, roads, bridges or other structures which are unstable and/or unsafe and which pose risks to safety unless additional support and strengthening measures are implemented.

(9) Work in areas which may have been damaged and otherwise rendered dangerous by adverse climatic, natural or seismic conditions.

1.22.2. Particular care shall be taken by the Contractor when performing any Dangerous Work.

1.22.3. Contractor's Personnel who are to perform or be involved at the Site in the performance of Dangerous Work, in addition to the usual safety induction training, shall be given further special training according to the nature of the Dangerous Work upon which they are to be engaged so that they can safely perform such work.

1.22.4. The HSO shall check and certify that each of the trained workers are authorised to be engaged upon particular types of Dangerous Work, by issuing an official permit in accordance with JSSS 1.23 [*Permit to Work System – Dangerous Work*] that is to be worn conspicuously and be available for validation by the Engineer.

1.22.5. The HSO shall ensure where Dangerous Work is to be performed, that preparatory pre-work inspections are carried out to investigate and assess the work to be performed and ascertain the conditions likely to be encountered. Such inspection work shall be carried out by specially trained personnel. The Contractor shall prepare safety procedures to ensure that any such inspection personnel are not placed at risk because of any unsafe environmental or other adverse

or dangerous conditions.

1.22.6. A specially trained Operation Leader shall always be assigned to work full-time with every worker or team of workers engaged upon Dangerous Work.

1.22.7. The Contractor shall train and equip teams of selected workers at the Site for emergency rescue operation in accordance with JSSS 1.24 [*Accident Response Plan*].

1.22.8. The Contractor shall prepare and implement procedures for effective safety control of Dangerous Work. Such procedures may include zoning arrangements whereby different degrees of risk are separately categorised into different levels of requirement. The contents of this shall be included in the Method Statement and Safety Plan.

1.22.9. Signage shall clearly describe the Dangerous Work and state the reasons why the area is dangerous.

1.22.10. For measures for prohibiting entry, methods of demarcation and further definition of Dangerous Work, refer to JSSS 2.3 [*Prohibition of Entry*].

1.22.11. Hazardous Substances.

(1) If the Contractor during the execution of the Works, encounters and is required by the Particular Safety Specification or instructed by the Engineer to remove any Hazardous Substances (for example: asbestos and similarly dangerous or hazardous materials), the Contractor shall employ suitable specialists that are appropriately and specifically qualified, skilled and experienced in the safe and environmentally acceptable removal and disposal of the Hazardous Substances.

(2) The Contractor shall submit Safety Plans and Method Statements with respect to the removal and disposal of the Hazardous Substances to the Engineer in accordance with JSSS 1.7 [*Contractor's Safety Plans*] and JSSS 1.9 [*Contractor's Method Statements*].

1.23 PERMIT TO WORK SYSTEM – DANGEROUS WORK

1.23.1 The Contractor shall prepare and implement a "Permit to Work System" and a description of this shall be included in the Safety Plan.

1.23.2 The system shall be designed to control safety for Dangerous Work.

1.23.3 The system shall ensure that all foreseeable risks have been considered and that the required control measures for safe working have been implemented before any specific work is permitted to proceed.

1.23.4 Permits shall certify that workers are protected when they perform and workers shall sign the permit and register to show that they understand the risks and the precautions necessary.

1.23.5 The HSO shall assess the work and check safety at each stage and manage the Permit to Work System.

1.24 ACCIDENT RESPONSE PLAN

1.24.1 The Contractor shall be responsible for responding to and treating accidents at the Site in an efficient and dedicated manner with the provision of rescue and treatment services using trained personnel with experienced and qualified medical staff and adequate and equipped facilities at the Site.

1.24.2 Medical, first aid and related services and facilities at the Site for accidental injuries shall be made available free of charge for Contractor's and Employer's Personnel. If so specified in the Particular Safety Specification, such services and facilities shall also be made available free of charge for the family members of such Contractor's and Employer's Personnel.

コメントの追加 **[SS17]:** No. 17.

1.24.3 The Contractor shall prepare an Accident Response Plan as a part of the Safety Plan.

1.24.4 The Contractor shall provide the following medical and first aid services and facilities:

コメントの追加 **[SS18]:** No. 18

(1) Appropriate first aid appliances, aids, instruments and medicines.

(2) Trained first aiders.

(3) Communication facilities and measures for Emergency Response.

(4) Medical facilities on the Site together with suitable medical equipment and consumables.

(5) Temporary water and power supply to maintain use during mains supply failure.

(6) Transportation to be provided to efficiently and carefully transport casualties to medical facilities on the Site or hospitals off the Site.

(7) Additional facilities specified in the Particular Safety Specification, if any.

1.24.5 Where the Site is located at an excessive distance from urban areas and/or where there is a lack of immediate availability of medical services and facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site to comply with his obligations as specified in the Particular Safety Specification and as are necessary to fully protect all relevant personnel.

コメントの追加 **[SS19]:** No. 19

1.24.6 The Contractor shall train selected Contractor's Personnel to perform emergency rescue in a safe manner in the event of any accident. Workers so trained are called upon in the event of any emergency to rescue any person(s) who may become trapped or injured or otherwise affected or incapacitated and provide suitable, specialist and appropriate first aid treatment. They shall be allowed to continue with their normal work when not required for emergency rescue.

1.24.7 Rescue equipment shall include respiratory protective equipment for rescue operations, where the nature of the Works would dictate, safety extraction belts/harnesses/ropes.

1.24.8 Workers trained for emergency rescue, in addition to normal first aid treatment, shall be trained to perform CPR and also to operate an AED in accordance with the requirements of JSSS 2.9 [*PPE and First Aid*].

コメントの追加 **[SS20]:** No. 20

1.24.9 Adequate first aid equipment and supplies shall in any case be readily available at the Site and as referred to in JSSS 2.9 [*PPE and First Aid*].

1.25 MEASURES AT THE TIME ACCIDENTS OCCUR

1.25.1 When an accident occurs, the HSO shall immediately discontinue the concerned work, inform the Engineer and take all efforts to:

(1) Safely locate and extract casualties.

(2) Provide first aid treatment at the Site.

(3) Implement Secondary accident prevention activities, including:

(a) Preserving the accident site, make safe and prohibit any personnel to engage in rescue activities who are not trained to do so;

(b) Discontinuing construction work related to or in the vicinity of the accident; and

(c) Implementing any further measures instructed by the Engineer.

1.25.2 Report of Accident Occurrence, Cause, Investigation, Result and Recurrence, Prevention Measures.

(1) At occurrence of any accident, the HSO shall promptly inform the Engineer and thereafter submit details of the accident within twenty-four (24) hours after its occurrence.

(2) Having investigated and established the cause of any accident, the HSO shall report the detail and conclusion of the investigation as soon as practicable.

(3) The accident report shall include details of the counter-measures to prevent any reoccurrence and shall be in the format included in JSSS Annex 1.3 [*Additional*

Contractor Forms].

1.25.3 For resumption of work procedures, refer to JSSS 1.14 [*Procedure for Resuming the Works*].

1.26 EMERGENCY RESPONSE PLAN

1.26.1 To the extent reasonably possible, the Contractor shall keep himself fully informed at all times of likely forecasted climatic conditions, from TV, radio and internet and shall be aware when heavy winds, storms, rainfall or snowfall and electrical storms or other adverse climatic conditions are likely and can be reasonably anticipated.

1.26.2 The Contractor shall take all necessary measures to protect Contractor's Personnel, the Works and all Goods for incorporation therein from injury or damage caused by any such adverse climatic conditions, and to avoid, overcome or lessen the effects to a reasonable extent.

1.26.3 The Contractor shall keep all areas of the Site, free from surface water and ground water at all times and by whatever means are necessary. This shall include all newly exposed ground surfaces, excavated areas and/or excavations for structures, piling, trenches, pits, shafts, tunnels and the like, as necessary to ensure:

(1) The safety of all persons entitled to be on the Site, whether engaged in construction operations or otherwise on or in the vicinity of or adjacent to the Site.

(2) The safety and stability of the Works and Goods.

(3) The safety and stability of all ground surfaces, excavated areas and/or excavations for structures, piling, trenches, pits, shafts, tunnels and the like, to prevent landslides due to surface and/or underground water from rainfall and snowmelt, tidal water, ground water and any changes in ground water level, river or stream erosion, human activity and the like.

1.26.4 Where, due to the location of the Site, there is a risk of flooding, earthquake or volcanic activity, the Contractor shall take measures to prevent damage including damage from landslides and consequent injury, damage from such flooding, earthquake or volcanic activity.

Such measures to be implemented shall include:

(1) Avoiding the use of permanent or temporary earth dams, enclosures, containment structures, spoil heaps or the like where the effect of the above described climatic, seismic or volcanic conditions could weaken or destroy such structures and potentially create the consequent risk of danger to all relevant persons, including third parties and property not connected with the Works but potentially affected thereby.

(2) Provision of temporary support to all sides and soffits of excavations or portal of tunnelling of sufficient strength, durability and suitability.

(3) Provision of sufficient temporary drains and drain trenches to assist the flow of water and any further measures to prevent the effect of water entry to the Works, including pumping and provision of power for such measures.

1.26.5 Measures as required by the above shall be described by the Contractor in the Method Statements.

1.26.6 The Contractor shall prepare an Emergency Response Plan as a part of the Safety Plan.

1.26.7 The Emergency Response Plan, shall cover:

(1) Evacuation plan, showing evacuation routes and assembly points.

(2) Emergency communication facilities such as telephones, radios, transceivers, loudspeakers, sirens, etc. Such facilities shall be inspected by the HSO and maintained at all times so that they can be utilised in any emergency.

(3) Emergency contact system.

(4) Use of existing and available medical and other related facilities.

(5) Emergency stocks of bottled water, lights, ropes, shovels.

The Contractor shall provide and maintain in a state of readiness such equipment described above, that will remain useable in the case of an emergency. Where applicable sufficient back-up power shall be provided when power may be knocked out, long-life batteries, power generators with fuel capacity to allow long term use and the like.

1.26.8 The emergency contact system shall describe measures for quickly establishing locations and methods of contact with a listing of the persons, organisations and departments, that need to be located and contacted in the event of an emergency.

The list shall be posted in a visible location in the Contractor's Site office with a copy in the Employer's and Engineer's Site offices so that all personnel are informed.

The emergency contact list shall include name(s) of the person(s) responsible for making the contact, relevant contact persons, all with their respective telephone numbers and where relevant their radio contact.

The list shall include contact details and any further relevant information for the following parties, and define the extent to which contact is to be made in accordance with the type of emergency:

(1) Employer's Personnel at the Site and also at their respective head office.

(2) Relevant government authorities and agencies, administrative agencies, police stations, ambulance and fire stations, and the like.

(3) Contractor's Personnel at the Site and also at the head office.

(4) Subcontractors personnel and the personnel of any other contractors or suppliers at the Site and also at the head office.

1.26.9 Unless otherwise specified in the Particular Safety Specification, the Contractor shall conduct Emergency Response training based on the Emergency Response Plan at least every six (6) months, including training all personnel at the Site on evacuation plan and emergency contact system.

Details of the training shall be included as a part of the Emergency Response Plan and included with the Safety Plan.

1.26.10 If and when an emergency occurs, the Contractor shall share necessary information amongst prescribed persons on the emergency contact list described above and take appropriate measures including work discontinuation, evacuation of workers, making the Works, all premises and Contractor's Equipment safe, etc., all as circumstances reasonably permit and as instructed by the Engineer.

コメントの追加 **[SS21]:** No. 21

1.27 CONTRACTOR'S SAFETY COMMITTEE AND REGULAR SAFETY MEETINGS

1.27.1 The Contractor shall create an internal Safety Committee to assist with promoting and maintaining effective health and safety management.

1.27.2 Members of the Contractor's Safety Committee shall include:

(1) Contractor's Representative.

(2) HSO.

(3) Medical and first aid staff.

(4) Contractor's senior site staff.

(5) Contractor's head office safety manager (as necessary).

(6) Subcontractors' representatives, health and safety personnel, site staff.

(7) Representative of labour union, if any.

(8) (If necessary) Representatives of the relevant government authorities and agencies.

(9) Any other necessary personnel.

1.27.3 The HSO shall be the chairperson of the Safety Committee.

1.27.4 The Contractor shall arrange regular Safety Committee Meetings for the purpose of sharing information regarding health and safety management among the Contractor's Personnel:

(1) Frequency of the meetings: At least once a month (until issue of the Taking-Over Certificate of the entire Works).

(2) Agenda:

(a) Accidents, fatalities, injuries occurred in the previous month and measures to be taken to prevent any reoccurrence;

(b) Monthly or weekly schedule of important health and safety matters;

(c) Feedback on the regular safety, coordination and other meetings with the Engineer;

(d) Safety instructions received from the Engineer;

(e) Items to be coordinated with police, fire department and other related organisations;

(f) Compliance and registration requirements under the Laws of the Country;

(g) Safety and health awards, media attention and the like;

(h) Hazards, safety and health problems identified by any members of the Safety Committee;

(i) Effectiveness of existing Safety Plans and suggestions for revision and improvement; and

(j) Other matters.

1.27.5 Report on the Safety Committee Meetings

The HSO shall prepare a report summarising the concerns raised and conclusions of all items listed in the agenda as above.

A copy of this report shall be submitted to the Engineer within seven (7) days after the meeting and a further copy shall be included in the Contractor’s monthly progress report.

1.28 ENGINEER’S REGULAR SAFETY MEETINGS

1.28.1 The Engineer will arrange and host a regular safety meeting to be attended by representatives of the Employer and the Contractor for the purpose of sharing information regarding health and safety management among the representatives of the Employer and the Contractor. Parties present shall have the authority to represent the organisation they belong to on health and safety matters:

(1) Frequency of the meetings: Once a month (until issue of the Taking-Over Certificate of the entire Works).

(2) Agenda:

(a) Effectiveness of existing Safety Plans and suggestions for revision and improvement;

(b) Monthly or weekly schedule of important health and safety matters;

(c) Accidents, fatalities, injuries in the previous month and measures to be taken to

prevent any reoccurrence;

(d) Hazards, safety and health problems identified by any members of the Safety Committee;

(e) Status of resolution of previous problems;

(f) Items to be coordinated with police, fire department and other related organisations;

(g) Compliance and registration requirements under the Laws of the Country; and

(h) Safety and health awards, media attention and the like.

1.28.2 Report on the Engineer's Regular Safety Meetings:

(1) The Engineer shall prepare a report summarising the concerns raised and conclusions of all items listed in the agenda as above.

(2) A copy of this report shall be submitted to the Contractor and Employer within seven (7) days after the meetings.

(3) A further copy shall be included in the Engineer's Monthly Report submitted to the Employer.

(4) The Contractor shall act immediately upon any oral instruction which is a consequence of the Contractor's failure to comply with his obligations under the Contract.

(5) The Engineer shall issue a formal instruction for any variation requests.

1.29 PROJECT SAFETY COMMITTEE

1.29.1 On larger Projects with multiple contract packages, if so stated in the Particular Safety Specification, the Employer shall create a Project Safety Committee for the purpose of ensuring mutual understanding and effective implementation of health and safety management of the entire Project.

1.29.2 Unless otherwise agreed, the members of the Project Safety Committee shall include:

(1) The Employer.

(2) The Engineer(s).

(3) The Contractor's Representative(s) and HSO.

(4) Representatives and health and safety officers of all contractors.

1.29.3 The chairperson of the Safety Committee shall be the Employer.

1.29.4 The Project Safety Committee meetings periodically takes place as requested by the Employer. The Contractor shall participate in the same whenever requested by the Employer until issue of the Taking-Over Certificate of the entire Works.

1.29.5 The Employer shall prepare a report summarising the concerns raised and conclusions of all items discussed at the Project Safety Committee Meeting.

1.30 HEALTH AND SAFETY COORDINATION WITH OTHER CONTRACTORS

1.30.1 Refer to GC 2.3 [*Employer's Personnel*] and GC 4.6 [*Co-operation*] regarding the respective obligations and requirements for the Contractor regarding co-operation with:

(1) The Employer's Personnel.

(2) Any other contractors employed by the Employer.

(3) The personnel of any relevant authorities.

In relation to the above, the Employer shall ensure that all of the above personnel and contractors co-operate with the Contractor's efforts and that they take actions similar to those

that the Contractor is required to take under relevant parts of GC 4.8 [*Safety Procedures*] and GC 4.18 [*Protection of the Environment*].

The Contractor shall provide sufficient information to the Employer who shall then ensure that all of the above personnel and contractors are fully informed of the Contractor's Safety Plan and that their personnel comply with the Contractor's Safety Plan.

When preparing the Safety Plan, the Contractor shall identify the hazards and assess the risks of all aspects. To do this properly, information (including Method Statements, risk assessments and safety plans) may be needed from other contractors who will be working at the Site. The Employer shall therefore ensure that the Contractor is provided with all such other information as may be requested by the Contractor necessary so that this can be incorporated into the Safety Plan.

When risks arise because of potential interactions between the Contractor and other personnel or contractors (e.g. site transport matters) or a number of contractors are exposed to a common risk (e.g. from the site electrical distribution system), the Employer shall instruct these other contractors to adopt the same principles of risk prevention and control that are applied by the Contractor unless otherwise agreed.

1.30.2 If any other contractors are employed by the Employer and are working on or near the Site of any work, the Employer shall arrange and host Health and Safety Coordination Meetings:

(1) Frequency of the meetings: as and when considered necessary by Engineer.

(2) Unless otherwise agreed, attendees shall include representatives of the Employer, Contractor and any other contractors employed by the Employer and relevant authorities who are concerned with the execution of any work on or near the Site not included in the Contract.

(3) Agenda should relate to coordination among different contractors including for example:

(a) Effectiveness of existing Safety Plans and suggestions for revision and improvement;

(b) Issues, problems and response due to the mutual impact of the work of the Contractor, Employer's Personnel, the Employer's other contractors and the works of any relevant authorities;

(c) Accidents, injuries in the previous period and measures to be taken to prevent any reoccurrence;

(d) Status of resolution of previous problems;

(e) Items to be coordinated with police, fire department and other related organisations;

(f) Compliance and registration requirements under the Laws of the Country;

(g) Safety and health awards, media attention and the like; and

(h) Other matters.

1.30.3 Report on the Health and Safety Coordination Meetings:

(1) The Employer shall prepare a report summarising the concerns raised and conclusions of all items listed in the agenda as above.

(2) This report shall be submitted to the Engineer, Contractor and other attendees within seven (7) days after the meeting.

(3) A further copy shall be included in the Contractor's monthly progress report.

1.31 SAFETY STATISTICS

1.31.1 The Contractor shall collect and compile statistical data for safety performance on the Works

コメントの追加 **[SS22]:** No. 22

in order to permit monitoring of achievement and prevention of reoccurrence of accidents, near-misses and the like, therefore contributing to the improvement of safety on the Works.

1.31.2 Actual statistics shall include the following:

(1) Accident: description, casualties, location, time, type and cause.

(2) Near-miss: description, location, time, type and cause.

(3) Lost-time: lost hours of casualties, duration of discontinuation.

(4) Total working hours for calculation of frequency rate, severity rate and annual incident rate.

(5) Number of users of the first aid station, number of people treated for disease/injury, description of disease/injury, causes.

(6) Number of health and safety staff.

(7) Number of candidates given safety induction and other training.

(8) Number of safety inspections.

(9) Number of detections of non-compliant, unsafe or lack of Contractor's Equipment.

(10) Number of instructions issued for failure to use PPE, or inadequate or ineffective PPE.

(11) Number of Engineer's Instructions issued for work suspension.

(12) Number of HSO instructions issued for work stoppage.

(13) Others.

1.31.3 All data shall be in a format and content given consent by the Engineer.

1.31.4 The data shall subsequently be compiled and included in the Contractor's Monthly Safety Report to be submitted under JSSS 1.33 [*Safety Reports*].

1.32 HEALTH AND SAFETY RECORDS

1.32.1 The Contractor shall keep health and safety records for the following:

(1) Inspection records and checklists.

(2) Meetings for safety and health management.

(3) Monitoring of safety and health management activities.

(4) Health and safety education and training for the Contractor's Personnel.

(5) Health management for the Contractor's Personnel, documents regarding workers' health conditions (such as medical history and medical examination results) shall be stored in compliance with the Laws of the Country.

(6) Work environment records and other records required by JSSS 2 [*General Safety Measures*] and other parts of JSSS.

(7) Record of reports as may be required by government authorities.

(8) Detection of non-compliant, unsafe or lack of Contractor's Equipment.

(9) Instructions issued for unsafe behaviour or unsafe site conditions.

(10) Instructions issued for failure to use PPE, or inadequate or ineffective PPE.

(11) Engineer's Instructions issued for work suspension.

(12) HSO instructions issued for work stoppage.

(13) Others.

1.32.2 All records shall be in a format and content given consent by the Engineer and all shall be made available for inspection by the Engineer.

1.32.3 A summary of the above records shall be submitted to the Engineer as a part of the Contractor's Monthly Safety Report to be submitted under JSSS 1.33 [*Safety Reports*].

1.33 SAFETY REPORTS

1.33.1 The Contractor shall provide regular safety reports to the Engineer to keep him fully informed of compliance with the Safety Plan and all matters of health and safety. Reports shall include:

(1) Daily Safety Report: number of workers, works in progress (outline), statistical results in accordance with JSSS 1.31.2, near-misses/incidents/accidents, safety findings, actions taken, for improvement.

(2) Contractor/HSO and Joint Site Safety Inspection Reports.

(3) Weekly Safety Report: summary of safety matters of the week.

(4) Monthly Safety Report: summary of safety matters for the month, monthly and cumulative safety statistics. The Monthly Safety Report shall be submitted as a part of the Contractor's monthly progress report, required by GC 4.21 [*Progress Reports*].

1.34 HEALTH AND SAFETY INCENTIVE SCHEMES

1.34.1 The Contractor shall consistently enforce work rules (whether or not an injury or illness is reported) to demonstrate his commitment to creating a culture of safety, not just the appearance of reducing rates. Action should not be taken to penalise any worker for reporting a work-related injury or illness rather than for the purpose of promoting workplace safety.

1.34.2 It is considered that incentive schemes are an important tool to promote an improvement in workplace health and safety and the Contractor is therefore required to develop and implement such health and safety incentive schemes.

1.34.3 It is suggested that workers should be rewarded for reporting near-misses or hazards, as this promotes worker involvement in the health and safety management process.

1.34.4 Consideration should also be given to rate-based incentive schemes which concentrate on reducing the number of reported injuries and illnesses by rewarding workers with certification and/or prizes or bonuses at the end of an injury-free period and which also could reward Operation Leaders or managers based on the elimination of injuries within their respective teams.

1.34.5 Any scheme must however be implemented in such a manner that it does not discourage reporting by workers, such as taking negative action against a worker by withholding a prize or bonus because of a reported injury.

1.34.6 The Contractor shall introduce adequate precautions to ensure that workers feel free to report an injury or illness.

1.34.7 As an alternative to rate-based incentive schemes, incentive schemes that take positive steps to emphasise safety, not just incident rates are often useful such as schemes that reward workers for identifying potentially unsafe, dangerous or hazardous conditions on the Site.

1.34.8 The Contractor shall describe the proposed health and safety incentive scheme in the Safety Plan and shall also inform the Employer and Engineer about the progress and achievement of such schemes through their Monthly Safety Report submitted under JSSS 1.33 [*Safety Reports*].

1.35 CONTRACTOR'S EQUIPMENT, TEMPORARY WORKS, SAFETY EQUIPMENT AND PPE

1.35.1 Contractor's Equipment, Temporary Works, Safety Equipment and PPE to be used upon the Works, (for example electrical systems, welding and cutting equipment, Scaffolding, Formwork and Falsework, etc.) together with all components, systems, materials and equipment,

safety equipment and PPE (referred to collectively in this Clause as Contractor's Equipment and Temporary Works), shall be suitable and fit for the purpose for which they are intended.

All shall be used in full accordance with the manufacturer's printed instructions or accepted industry practice and shall be used, stored, handled, assembled, erected, installed, maintained and dismantled by qualified, skilled, specially trained and experienced personnel.

1.35.2 The Contractor shall ensure that all items of Contractor's Equipment and Temporary Works for use upon the Works are inspected by the HSO at the required location before the commencement of any operation or use and regularly inspected thereafter to ensure continued compliance with the foregoing. Following any such inspection, all tested items shall be labelled by the Contractor with clear, durable and weatherproof labels confirming the last/current date of inspection, date of next inspection and signed by the HSO, thereby certifying the items as being safe for use.

If the HSO ascertains at any time that any items are not suitable for use, he shall immediately stop all use of that item, label the item as not being safe for use, stop all work for which that item and any associated items is being used and cease any such work until the situation is corrected by repair, re-testing and certifying. Similarly, the Engineer may issue instructions to stop all use of any item and stop all work for which that item and any associated items is used when it is discovered that the certification is not available or is not currently valid.

1.35.3 The Engineer may also instruct that any Contractor's Equipment and Temporary Works shall be subjected to examination, inspection, measurement or testing, by the Contractor at the expense of the Contractor. The Contractor shall submit the report of such examination, inspection, measurement or testing to the Engineer.

If, as a result, any such Contractor's Equipment and Temporary Works is found to be defective, or otherwise not in accordance with JSSS or the Contract, the Engineer may reject such Contractor's Equipment and Temporary Works by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the defect and ensure by repair/replacement as necessary and re-testing that the rejected item(s) complies with the Contract.

1.35.4 As confirmed in Form JSSS/BSD Bidder's Safety Declaration (refer to JSSS Annex 1.3 [*Additional Contractor Forms*]), the Contractor shall mobilise for use upon the Works:

(1) New or recent Personal Protective Equipment (PPE) and other safety equipment of an international standard, suitable and fit for the purpose for which it is intended, in full working order, complete with all necessary spare parts and consumables, suitable and safe for use on the Works, all to meet with the consent of the Engineer and in sufficient quantities to allow for replacement in the case of being worn-out, lost or damaged.

(2) New or recent Contractor's Equipment and Temporary Works, all suitable and fit for the purpose for which it is intended, in full working order, clean, non-polluting, complete with all necessary spare parts and consumables, suitable and safe for use on the Works.

1.36 HEALTH MATTERS

1.36.1 The Contractor is reminded of his obligations under GC 6.7 [*Health and Safety*] to take all reasonable precautions, at all times to maintain the health of the Contractor's Personnel and ensure that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics. Under other Clauses of the Contract, the Contractor is required to protect the Contractor's Personnel from insect and pest nuisance, and to take other measures to reduce danger to their health.

1.36.2 Healthcare services and facilities at the Site shall be made available free of charge for Contractor's and Employer's Personnel. If so specified in the Particular Safety Specification, such healthcare services and facilities shall also be made available free of charge for the family members of such Contractor's and Employer's Personnel.

コメントの追加 **[SS23]:** No. 23

1.36.3 Occupational health care shall be provided by the Contractor and shall include:

(1) Environmental health care with consideration and precautions against asbestos, dust, lead and other metals, gases, hazardous and toxic chemicals, sunlight, engine exhaust emissions, (refer also to JSSS 2.1 [*Working Environment*]).

(2) Measures against noise, frequent or excessive use of vibrating tools.

(3) Avoiding frequent or excessive manual handling of loads, stress and fatigue.

(4) Fitness to work based on the physical mobility and capability of the Contractor's Personnel.

1.36.4 The Contractor shall prepare a Health Care Plan as a part of the Safety Plan including, descriptions and where necessary details or quantities of:

(1) Health care staff to be assigned at the Site.

(2) Provision of anti-mosquito measures including nets, medications and the like in malarial prone areas.

コメントの追加 **[SS24]:** No. 24

(3) Healthcare services to be provided including lectures and education on health matters.

(4) Healthcare treatment facilities and medicines on the Site together with description of equipment and consumables.

(5) Occupational healthcare proposal.

(6) Temporary water and power supply to maintain use during mains supply failure.

1.36.5 Where the Site is located at an excessive distance from urban areas and/or where there is a lack of immediate availability of healthcare services and facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional healthcare services and facilities at the Site to comply with his obligations as specified in the Particular Safety Specification and as are necessary to fully protect all relevant personnel.

1.36.6 Report of Serious Illness

(1) The Contractor shall inform the Engineer and submit details of any serious illness.

(2) Having investigated and established the cause of any serious illness, the Contractor shall report the detail and conclusion of the investigation as soon as practicable to the Engineer.

(3) The report shall include details of the HSO's recommended counter-measures.

(4) The Engineer is to be consulted on the types of illness for which reports are to be informed.

1.37 DESIGN AND MANAGEMENT OF TEMPORARY WORKS

1.37.1 Unless otherwise specified in the Particular Safety Specification, the Contractor is required to comply with Sections 1 and 2 of BS5975: Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework as management standard with respect to design, erection, use and dismantling of Temporary Works.

1.37.2 An alternative standard is acceptable by reference to JSSS 1.4.5 [*Specified Standards*] providing that the proposed alternative also contains equivalent or higher standards for the management of Temporary Works.

コメントの追加 **[SS25]:** No. 25

1.37.3 It is to be noted that Sections 1 and 2 of BS5975 constitutes guidance and recommendations and it is not quoted herein as if it constitutes a specification or an integral part of JSSS. The Contractor shall however justify in writing any course of action that deviates from the recommendations of Sections 1 and 2 of BS5975 and shall submit such justification to the Engineer for his information and consent.

1.37.4 It is to be noted that certain design standards included or referred to in the BS (for example wind loadings), are restricted to use in the United Kingdom, in which case the Contractor shall

be assumed to have adopted the design standards applicable in the Country.

1.37.5 The Contractor shall prepare and implement suitable procedures whereby all Temporary Works staff during the course of their work and on completion shall prepare and sign formal records of all Temporary Works under their management and control, thereby certifying that all has been performed, completed and validated in accordance with Sections 1 and 2 of BS5975. All such records shall be in a format and content subject to the consent of the Engineer and all shall be made available for inspection by the Engineer.

1.37.6 Without affecting the Contractor's responsibilities for design of the Temporary Works, the Engineer shall cooperate with the Contractor's Temporary Works staff and shall provide pertinent information about the design of the Permanent Works which may be of relevance and assistance to the Contractor with the Temporary Works design.

The Contractor shall submit Method Statements for any parts of the Temporary Works (including designs and calculations of Falsework) as may be requested by the Engineer for his review in accordance with JSSS 1.9 [*Contractor's Method Statements*]. If the Engineer chooses to review same, this shall not be construed as a check or validation of the Contractor's design or methods.

The Engineer may review Temporary Works design for those parts which he considers to be of vital importance for safety. The Contractor shall cooperate and work with the Engineer on this task to demonstrate that the Contractor has systems in place to ensure compliance with Sections 1 and 2 of BS 5975 or any other acceptable standard in accordance with JSSS 1.37.2.

1.37.7 For further information on monitoring the performance of Temporary Works, refer to JSSS 6.1.3. [*Monitoring the Performance of Temporary Works*].

1.37.8 Irrespective of any legal requirement under the Laws of the Country, all of the Contractor's Temporary Works staff shall have appropriate academic, educational or vocational qualification for Temporary Works coordination, design or supervision as appropriate. Such staff shall also have work experience in construction and in Temporary Works design or supervision as appropriate. The Contractor shall ascertain for himself that all such staff are qualified to perform their duties.

1.38 UNEXPLODED ORDNANCE (UXO)

1.38.1 If there is a possibility that any UXO may exist at the Site, then unless otherwise specified in the Particular Safety Specification, this shall be surveyed and investigated by the Employer and the result of this investigation shall be clearly stated and full information including survey and investigation results shall be provided by the Employer in the Particular Safety Specification.

1.38.2 Unless otherwise specified in the Particular Specification, clearance of UXO shall be undertaken by the Employer and at the cost of the Employer.

1.38.3 Completion of clearance shall be evidenced through the issue by the Employer's specialist remover of a certificate of UXO clearance from the Site. Unless otherwise approved by the Engineer, no work shall commence in affected areas of the Site until the receipt of a copy of this certificate.

1.38.4 Should the Contractor encounter any UXO, after a clearance certificate has been issued in accordance with the above, he shall immediately stop all affected work at the affected area of the Site, clear the area of all Contractor's Personnel, Employer's Personnel and all other persons and notify the Engineer and relevant authorities.

1.38.5 Unless otherwise agreed between Employer and Contractor, the Employer shall then make further arrangements for removal and disposal, then obtain and issue a further clearance certificate. Work shall resume in the affected areas after the Contractor has received a copy if the further clearance certificate together with any further instructions from the Engineer.

ANNEXES TO CHAPTER 1: GENERAL REQUIREMENTS

Annex 1.1: Definitions and Abbreviations

A1.1.1 The following words and expressions in JSSS relating to the Conditions of Contract and the content of JSSS shall have the definitions stated:

(1) "**GC**" followed immediately by a reference number means respectively General Conditions of Contract Clause or Sub-Clause.

(2) "**Health and Safety Officer**" or "**HSO**" means the Contractor's health and safety officer at the Site to be appointed by the Contractor in accordance with GC 6. 7 [*Health and Safety*]. For the purposes of interpretation under JSSS, the reference to "accident prevention officer at the Site" in GC 6.7 [*Health and Safety*], shall be construed as "Health and Safety Officer at the Site".

(3) "**JICA Standard Safety Specification**" or "**JSSS**" means the document of this title published officially by JICA on their website as may be further modified by the Particular Safety Specification for the Works.

(4) "**Method Statement**" means a document that shows the details of the arrangements, methods and resources that the Contractor proposes to adopt for the execution of the Works or any part of the Works, as referred to in GC 4.1 [*Contractor's General Obligations*] and supplemented by JSSS 1.9 [*Contractor's Method Statements*].

(5) **"Operation Leader" (**also known variously as a "Ganger", "Leading Hand", "Foreman" (working and non-working), "Team Leader", "Superintendent", "Supervisor" and the like) means a member of the Contractor's workforce who through experience, training and testing is deemed by the Contractor to be appropriately qualified, skilled and experienced in their respective trade or occupation to work with, lead and/or supervise the teams of workers, directing them and/or superintending them in the performance of their assigned duties and to ensure their compliance with the Contractor's safety regulations and who can also be referred to within the OSHA definition as a "Competent Person".

(6) "**OSHA**" means the technical requirements of the OSHA standard(s) from the Code of Federal Regulations (29 CFR) published by the Occupational Safety and Health Administration, U.S. Department of Labor.

コメントの追加 **[SS26]:** No. 26

(7) "**Particular Safety Specification**" means the document that contains the particular additions and modifications to JSSS, necessary to create a precise and relevant specification of the health and safety requirements for the Works.

(8) "**Project**" means the particular Works and services to be implemented by the Borrower and described in the loan agreement, utilising the funds provided by JICA under the terms mutually agreed for that purpose.

(9) "**Safety**" shall also mean "occupational health and safety" and "health and safety".

(10) "**Safety Plan**" means a document (or documents) that contains the overall risk assessments together with the details of all health and safety arrangements, methods and resources that the Contractor proposes to adopt for health and safety management of the entire Works or any Section or part of the Works, as referred to in GC 4.1 [*Contractor's General Obligations*] as supplemented by JSSS 1.7 [*Contractor's Safety Plans*].

(11) "**Safety Specification**" means the document that contains Part 1 [*JSSS*] and Part 2 [*Particular Safety Specification*].

A1.1.2 The following words and expressions in JSSS relating to the technical content of JSSS shall have the definitions stated:

コメントの追加 [SS27]: No. 27

(1) "**Accident Response**" means the requirements for the Contractor's response to an accident at the Site, as further referred to in JSSS 1.24 [*Accident Response Plan*].

(2) "**Blasting**" means blowing-up or breaking apart solid rock with the use of Explosives.

(3) "**Blasting Exclusion Zone**" means an area from which all unauthorised Contractor's Personnel, unauthorised Employer's Personnel and any other unauthorised personnel or the general public are prohibited to enter due to the risk of their being affected by the Blasting Works. Unauthorised personnel in this context shall have the same meaning as that stated in JSSS Clause 2.3.1.

(4) **"Confined Spaces"** means spaces that are not designed for continuous occupation but are provided for persons to enter and perform certain works (including inspection, maintenance and repairs) and that consequently may have limited or restricted means for entry or exit. Due to the likelihood of insufficient ventilation, the Contractor shall be aware of a potentially unhealthy or dangerous environment and he shall be deemed to have investigated and taken measures against such risks in every case.

(5) **"Cofferdam"** means a temporary enclosing wall constructed in water, to permit the enclosed area to be pumped out and used as safe and accessible working space.

(6) **"Dangerous Goods"** means corrosive, flammable, explosive, spontaneously combustible, toxic, oxidising, or water-reactive materials. They must be identified in the workplace (and when being transported) by different coloured 'diamond' symbols. classified on the basis of immediate physical or chemical effects, such as fire, explosion, corrosion and poisoning. An accident involving Dangerous Goods could seriously injure persons and seriously damage property and/or the environment.

(7) **"Dangerous Work"** means Permanent or Temporary Works to be executed by the Contractor in Confined Spaces, Hazardous Areas, or Operational Areas or in the presence of or requiring the use of Hazardous Substances or Dangerous Goods or other work which is especially and potentially dangerous and which requires the use of specialist skills, safety equipment, safety measures and PPE.

(8) "**Designated Person-in-Charge**" or "**DPIC**" means a senior member of the Diving Team who, through qualification, experience and capability is deemed by the HSO to be qualified to be in charge of all aspects of the Diving Operation including those affecting the safety and health of members of the Dive Team.

(9) "**Dive Team**" means Divers, support assistants and workboat crew who are involved in any Diving Operation, including the Designated Person-in-Charge.

(10) "**Diver**" means a worker working in water using underwater breathing apparatus which supplies compressed breathing gas at the ambient pressure.

(11) "**Diving Operation**" means one (1) single diving activity for one (1) Diver or a team of Divers commencing from the time when the first Diver enters the water and extending until the last Diver has left the water, chamber or other environment in which the dive, or any part of the dive, took place and has completed any requisite decompression procedures, including, where it may be reasonably anticipated that this will be needed, any therapeutic recompression. The nature and size of any Diving Operation shall be such that it can be safely supervised by one (1) person.

(12) "**Diving Works**" means a part of the Works consisting of one (1) or more Diving Operations.

(13) "**Earthwork Support**" means the permanent or temporary structural support arrangements to prevent the collapse or weakening of the surfaces of any excavation including for example basement, pit, trench or slope excavation.

(14) "**Elevated Access Structures**" means substantial, elevated, temporary working platforms, usually comprised of structural steel columns, beams, framing and floor decking and used for performing works on Sites with difficult access or restricted space, on steeply sloping or Sites in water.

コメントの追加 **[SS28]:** No. 28

(15) "**Emergency Response**" means the requirements for the Contractor's response to any Emergency at the Site or Sites, as further referred to in JSSS 1.26 [*Emergency Response Plan*].

(16) "**Explosives**" means any substance or mixture of substances that is manufactured to produce an explosive effect and which term includes any Blasting explosive, Blasting agent and Blasting supplies such as detonators, cords and detonating equipment.

(17) "**Falling Objects**" means objects falling from heights including displaced, dropped, or blown Goods, tools, debris or waste material.

(18) "**Falsework**" means temporary supporting structures used to support parts of the Temporary Works or Permanent Works during construction, until the latter are stable, self-supporting and safe.

(19) "**Formwork**" means temporary containment structures for cast-in-place (poured or pumped) concrete and the immediately supporting members in advance of the concrete achieving sufficient strength to support its own weight and act safely as a structural component.

(20) **"Hazardous Areas"** means areas where there is a risk of explosion due to the presence of flammable or explosive gases, vapours, mists or dusts.

(21) **"Hazardous Substances"** means any substance, whether solid, liquid or gas, that may cause harm to health.

(22) "**Hoisting Equipment**" means Contractor's Equipment such as cranes, hoists, chain-blocks, pulleys and the like which constitute the prime mover that, when used with Rigging Equipment, permits loads to be hoisted or lowered and positioned.

(23) "**Hoisting Operation**" means the selection of Hoisting Equipment appropriate to the purpose, preparation of Method Statements and Safety Plans and safely implementing the hoisting and placing of loads in position.

(24) "**Operational Area**" means an area in a functioning process, treatment, manufacturing or like facility where the Contractor is required to perform work while the Employer is continuing operations.

(25) "**Other Properties**" means buildings, structures, ground surfaces and substrata, paved areas, roads, footpaths, fences, railways, waterways, drainage, utilities and other services or the like or any other property on the Site or outside the Site which may be in some way affected by the execution of the Works.

(26) "**Personal Fall Arrest System**" or "**PFAS**" means a fall protection system that is designed to arrest a worker in a fall from a working level.

(27) "**Personal Fall Restraint System**" or "**PFRS**" (also referred to as a "Positioning Device System") means a fall protection system that is designed to restrict the movement of workers, preventing them from reaching the edge of any working area and therefore eliminating the risk of a fall.

(28) "**Personal Protective Equipment**" or "**PPE**" means equipment that is worn by the person to minimise exposure to hazards that cause serious workplace injuries and

illnesses, which may result from Falling Objects, excessive noise, dust, contact with chemical, radiological, physical, electrical, mechanical, or other workplace hazards.

(29) "**Rated Capacity**" (referred to occasionally in OSHA and elsewhere as "Safe Working Load") means the maximum load capacity for items of Contractor's Equipment and Temporary Works, as officially recommended by the manufacturer. The Rated Capacity may be dependent upon the configuration and conditions of use (e.g. length, angle of boom and the like).

(30) "**Rigger**" means a competent person who is certified by the HSO as suitable for assignment to Hoisting and Rigging in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*].

(31) "**Rigging Equipment**" means the ropes, webbing, chains and slings together with all associated accessories such as hooks, hoisting points, shackles, etc. that, when used with Hoisting Equipment, permits loads to be hoisted or lowered, and positioned.

(32) "**Safety Belt**" means a sufficiently substantial strap to be secured about the waist for attaching to a lanyard or line to restrain the movement of workers and prevent them from reaching locations from where they may be at risk of falling.

(33) "**Safety Harness**" means a sufficiently substantial harness to be secured about the body for attaching to a lanyard, lifeline and deceleration device to safely arrest and support any worker during a fall.

(34) "**Scaffold**" or "**Scaffolding**" means a temporary structure or structures that provide access on or from which persons work or to support Goods.

(35) "**SCUBA Diving**" means a diving mode independent of surface supply in which the Diver uses open circuit self-contained underwater breathing apparatus.

(36) "**Skill Training"** means additional training to be provided by the Contractor for the Contractor's Personnel to develop and improve their trade skills in performing their work at the Site and shall include OJT and theoretical training in accordance with JSSS 1.21 [*Skill Training*]. Such training shall also include examining and testing by the Contractor and certification of attainment in such skills.

(37) "**Spotter**" means a member of the Contractor's Personnel who is generally responsible for warning other Contractor's and Employer's Personnel and other persons and keeping them away from working operations and areas, for assisting drivers of trucks and operators of Contractor's Equipment in positioning their vehicles and equipment particularly when reversing, positioning or hoisting, and such further duties as are assigned to them in JSSS 2.4 [*Spotters*].

Any reference to a "Spotter" in JSSS shall also be deemed to include a reference to a banksman or flagman.

(38) "**Surface-Supplied Air Diving**" means a diving mode in which the Diver is supplied at the dive location with a piped supply of compressed air for breathing.

(39) "**Trade Effluent**" means any liquid waste (effluent) that is discharged from premises being used for a business, trade or industrial process, other than surface water and domestic sewage.

(40) "**Unexploded Ordnance**" or "**UXO**" means unexploded bombs, or explosive remnants of war or explosive weapons(such as bombs, shells, grenades, land mines, naval mines, cluster munition, and the like) that did not explode when they were employed and still pose a risk of detonation, sometimes long after they were used or discarded.

(41) "**Working Platform**" means a platform on or within a Scaffold that is intended and designed to support persons or Goods.

A1.1.3 The following abbreviations of technical terms shall have the meanings stated:

AED	Automatic External Defibrillator
BMGV	Biological Monitoring Guidance Values
CPR	Cardiopulmonary Resuscitation
GFCI	Ground Fault Circuit Interrupter
ODA	Official Development Assistance
OJT	On the Job Training
PFAS	Personal Fall Arrest System
PFRS	Personal Fall Restraint System
PPE	Personal Protective Equipment
RCD	Residual Current Device
TBM	Tool Box Meetings
TWA	Time Weighted Average
WEL	Workplace Exposure Limits

コメントの追加 **[SS29]:** No. 29

A1.1.4 The following abbreviations of standards, codes and the like shall have the meanings stated:

ACI	American Concrete Institute
ANSI	American National Standards Institute
ASHTO	American Association of State of Highway Transportation Officials
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials.
BS	British Standard
BS EN	British Standard European Norm
HSE	UK Health and Safety Executive
ISO	International Organization for Standardization
ILO	International Labour Organization
JIS	Japanese Industrial Standards

Annex 1.2: Content of Bid Stage Safety Plan

A1.2.1 This Annex lists the required content for the Bid Stage Safety Plan as referred to in JSSS 1.7 [*Contractor's Safety Plans*]. Unless otherwise specified in the Particular Safety Specification, the Contractor shall follow this format and structure in the Bid Stage Safety Plan. The same format and structure shall be used later for the Baseline Safety Plan but with the content developed as necessary to show the required detail.

A1.2.2 The Bid Stage Safety Plan shall be an outline plan but it must cover each of the items listed below with sufficient detail provided to demonstrate that the Bidder understands the requirements and indicates the Bidder's intentions, so that this can be understood and properly evaluated.

(1) Description of the Works

A description of the Works supported by overall layout plan(s) to provide a clear understanding of the overall layout and content of the Works and showing main construction items and areas, roads, Site access and egress locations, working areas, storage areas, temporary offices, laydown areas, warehouses and like facilities and including a summary of principal work items and significant quantities, etc.

(2) Bidder's Corporate Policy on Health and Safety Management

A description of the Bidder's corporate health and safety management policy covering the aims and intentions for improving the level of health and safety. The policy shall include a description of the purpose of health and safety (prevention of occupational accidents, maintenance of physical and mental health of workers, etc.), a description of the basic company policies on risk assessment and health and safety management.

(3) Health and Safety Management System, Responsibility and Authority of Bidder's Personnel

A description of the health and safety management organisation at the Site headed by the Bidder's Health and Safety Officer (HSO) and showing the approximate numbers, responsibilities and authority of any other Contractor's Personnel involved in health and safety management at the Site.

A description of the responsibilities and authority of the Bidder's head office health and safety personnel together with the communication procedures for contact and support for the Site safety teams.

(4) Health and Safety Laws

A list of Laws (including all standards) of the Country which require the Bidders compliance for the health and safety of his workers and for the health and safety management of the Works. If the Contractor considers any parts to be superseded by JSSS then the relevant Clause number of JSSS shall be inserted.

(5) Bidder's Safety Management System

Refer to JSSS 1.5 [*Contractor's Safety Management System*].

Describe the scheme that the Bidder is proposing and how he intends to implement same.

(6) Temporary Works

Refer to JSSS 1.37 [*Design and Management of Temporary Works*].

A Safety Plan for Temporary Works listing the principal items, describing the content, and specifying the outline of safety measures to be applied to ensure compliance with the requirements.

(7) Temporary Facilities on Site

The plan shall include a description of the general health and safety rules (e.g. smoking areas, traveling speed on Site, cleanliness, tidiness, latrines, wash rooms, shelters, etc.).

(8) Safety Measures for Contractor's Design of the Permanent Works

If, under GC 4.1 [*Contractor's General Obligations*], the Contract specifies that the Contractor shall design any part of the Permanent Works, the Bidder shall provide a description of the arrangements for controlling risks arising from such design of the Permanent Works.

(9) Safety Plan for the Works

A Safety Plan for the whole of the Works with separate parts provided for each part of the Works, including descriptions of the likely risks and measures for preventing accidents on the Site.

(10) Safety Plan for Diving Works

(Where Diving Works are included in the scope)

Refer to JSSS 10 [*Diving Works*].

A Safety Plan in accordance with the requirements of JSSS 10, including a description of the arrangements at the Site of the Diving Works for emergency recompression/decompression.

(11) Safety Plan for Dangerous Work.

Refer to JSSS 1.22 [*Dangerous Work*].

A listing of any Dangerous Work which will be encountered on the Site and general details of the Safety Plan for such Dangerous Work by reference to JSSS Annex 1.1 [*Definitions and Abbreviations*] and GC 4.1 [*Contractor's General Obligations*].

(12) Permit to Work System

Refer to JSSS 1.23 [*Permit to Work System – Dangerous Work*].

A listing of all high-risk areas of the Works that shall be subject to the Permit to Work System together with a description of proposed procedure.

(13) Safety Measures for Contractor's Equipment

Refer to JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

A description of the procedures for inspecting and maintaining the Contractor's Equipment together with all spare parts, including inspections prior to shipment, after arrival at the Site and during use to ensure that all Contractor's Equipment at the Site is maintained in a safe, efficient, non-polluting and acceptable condition. It shall include a general description of all regular maintenance and repair activities.

(14) Proposed Health and Safety Incentive Scheme

Refer to JSSS 1.34 [*Health and Safety Incentive Schemes*].

A description of the Proposed Health and Safety Incentive Scheme, designed to encourage conscious consideration of health and safety by Contractor's Personnel and to reward improvement.

(15) Safety Information Sharing and Communications Policy

A description of the information sharing and communication systems for health and safety within the organisation of the Contractor and between the Contractor and Employer, Engineer and relevant government agencies, etc. Reference shall be made to the various health and safety meetings described in JSSS.

A description of safety management activities for Contractor's Personnel shall be included together with the method for giving and receiving feedback and opinions regarding health and safety.

(16) Health and Safety Equipment, Facilities and Personal Protective Equipment (PPE)

Refer to JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

A description of the intended policies for the deployment of safety equipment, facilities and PPE to reduce health and safety risks, detailing the items and methods for providing and replacing (when worn, lost or damaged) general PPE and the use of additional PPE for particular working locations, environments and conditions.

(17) Site Inspection Plan

A description of the methods for Site inspections by the HSO, types of inspection and frequency.

The description shall also include the methods for reporting, recording and utilising results and also for posting warnings, no entry notices, giving instructions and stopping work.

(18) Site Security

A description of the proposed Site security methods explaining how access to the Site by third parties, neighbours, nearby residents and any trespassers upon the Site will be prevented or (if and when applicable) permitted.

The description shall include the provision and control of entry and exit gates, barriers etc., security posts, security patrols and any other measures to reasonably ensure the security of the Site.

(19) Policy for Preventing Traffic Accidents

A description of the measures to be implemented for the prevention of traffic accidents on the public roads outside the Site and on roads and all other trafficked areas within the Site.

A description of the measures to be implemented to prevent workers riding in the back of pick-ups or trucks, or boarding or alighting from them near the Site, compulsory wearing of seat belts.

(20) Reporting Procedure for Unsafe Conditions and Behaviour

A procedure for the reporting of unsafe conditions and unsafe behaviour on the Site (including near-misses) together with improvement actions including instructions, implementation and the recording of improvement measures.

(21) Accident Response Plan

Refer to JSSS 1.24 [*Accident Response Plan*].

The Plan shall describe the facilities to be provided and also cover the preparation and submission of the accident report, describing when an accident report will be prepared and submitted, the method of investigation of causes, planning and implementation of preventive measures against recurrence.

(22) Health Care Plan

Refer to JSSS 1.36 [*Health Matters*].

A description of the proposed facilities, furniture and equipment for rest stations, restroom, dining facilities, canteens, sanitary facilities, sports and leisure facilities, shower facilities, changing room etc.

A health care plan with services and facilities for maintaining the health and occupational health of all Contractor's Personnel.

(23) Environmental, Temporary Works and Structural Monitoring Plans

Refer to JSSS 2.1.7 [*Monitoring and Records*].

A description of the proposed monitoring equipment, instruments, Contractor's Personnel and methods for monitoring and control of the working environment, the performance of the Works and the avoidance of damage to Other Properties.

(24) Fire Response Plan

Refer to JSSS 2.8 [*Fire Prevention*].

Details of the fire prevention services to be provided at the Site.

(25) Emergency Response Plan

Refer to JSSS 1.26 [*Emergency Response Plan*]

Details of the Emergency Response Plan.

(26) Monitoring and Review of Health and Safety Management Activities

The procedures for monitoring and reviewing the purpose, method, timing, utilisation of results, development, etc. of health and safety management activities such as safety inspections, TBM, 5S activities (refer to JSSS 1.15 [*Contractor's Safety Management Activities*]).

(27) Safety Induction Training

Refer to JSSS 1.20 [*Safety Induction Training*].

An outline description of the required safety induction training for all proposed health and safety training plans, describing methods, facilities, time, teaching materials, policies for selecting trainers, etc. and covering safety induction.

Details of special training required for Dangerous Work shall also be included.

(28) Skill Training

Refer to JSSS 1.21 [*Skill Training*].

An outline description of the proposed Skill Training plans for local counterpart Operation Leaders, describing OJT and classroom components, facilities, participants, time, teaching materials, policies for selecting trainers and the counterparts.

(29) Legal Requirements

A description in brief with references to the legal requirements and remedies in the Country for injuries and death at work and for persons affected by illness, together with a summary of any workmen's accident compensation insurance or stating that there are no such legal requirements if that is the case, and any other legal obligations and remedies.

Annex 1.3: Additional Contractor Forms

Attached Forms:

Form JSSS/BSD – Bidder's Safety Declaration

Form JSSS/SAR – Sample Accident Report

Form JSSS/BSD – Bidder's Safety Declaration

[This form is to be inserted in the Bidding Documents after the existing Form-ACK, with new page number, renumbering existing pages appropriately and inserting suitable reference in the Table of Forms]

I, *[insert name and position of authorised signatory]*, being duly authorised by *[insert name of Bidder/members of joint venture ("JV")]* (hereinafter referred to as the "Bidder") to execute this Form JSSS/BSD, hereby declare our commitment to comply with the health and safety requirements of the Contract.

The Bidder declares, that if selected to undertake the Works, he will ensure that the Site is established and maintained as a healthy and safe workplace for the Contractor's Personnel, the Employer's Personnel and all other persons entitled to be thereon or that may be affected by operations thereby.

The Bidder hereby declares that after investigation and research of resources within the Country, he has given full and careful consideration and fully accepts the need and has made full allowance for the importation, the use upon the Works and subsequent re-export in accordance with the Contract of all required Contractor's Equipment, Temporary Works, PPE and all other safety resources necessary to maintain the international level of health and safety upon the Works.

The Bidder declares that he will mobilise for use upon the Works:

1. New or recent PPE and other safety equipment of an international standard, suitable and fit for the purpose for which it is intended, in full working order, complete with all necessary spare parts and consumables, suitable and safe for use on the Works, all to meet with the consent of the Engineer and in sufficient quantities to allow for replacement in the case of being worn-out, lost or damaged, and
2. New or recent Contractor's Equipment and Temporary Works, all suitable and fit for the purpose for which it is intended, in full working order, clean, non-polluting, complete with all necessary spare parts and consumables, suitable and safe for use on the Works.

The Bidder further declares that he shall:

1. Carry out regular and thorough safety inspections, find and correct any health and safety problems on the Works, primarily by trying to eliminate or reduce hazards through making feasible changes in working conditions rather than relying on PPE to reduce risks.
2. Employ workers with appropriate skill, educational or vocational qualification, experience and capability.
3. Fully inform workers about hazards.
4. Provide health and safety training to all Contractor's Personnel, any Subcontractors, suppliers and others for whom the Contractor is responsible, the Employer's Personnel and all other persons who are entitled to be on the Site, in a language and vocabulary they can understand.
5. Keep accurate records of work-related injuries and illnesses.
6. Perform tests in the workplace, such as air sampling as required by the Safety Specification.
7. Provide required new PPE at no cost to workers and ensure that this is used properly, kept in good condition and replaced in the case of being worn-out, lost or damaged.
8. Assign only workers who, in consideration of health, physical condition and age are suited to the operations to which they are assigned.
9. Provide eyesight, hearing and mobility examinations and other medical tests required by the Contract.

10. Post injury and illness information and data where workers can see them.

11. At occurrence of any accident, promptly inform the Engineer and thereafter submit details of the accident within twenty-four (24) hours after its occurrence.

12. Not retaliate against workers for using their rights under the Laws of the Country.

The requirements of this declaration shall apply fully to all of the Bidder's proposed Subcontractors, suppliers and specialists engaged by the Bidder on the Works, for whom the Bidder shall remain fully responsible.

The Bidder also affirms that if the Bid is successful, the Health and Safety Officer, named below and also included in Bidding Form, Form PER -1: Proposed Personnel, unless otherwise required by the Bidding Documents, shall be assigned from the Commencement Date, full-time upon the Site and shall not be replaced or substituted at any time except with the consent of the Engineer.

If the Bid is accepted the Bidder agrees that this Declaration shall form a part of the Contract, at and from which time all references to "Bidder" shall be construed as references to "Contractor".

Signed:	Signed:
_____	(Bidder's Proposed Health and Safety Officer)
(Bidder's Official Representative)	Or
	Bidder's Head Office Health and Safety Manager*)
Name:	Name:
_____	_____
Date: _____	Date: _____

*(*Delete as applicable)*

Form JSSS/SAR – Sample Accident Report

[The form is to be completed by the Contractor, submitted to the Engineer when applicable and in accordance with JSSS 1.25 [Measures at the Time Accidents Occur]

CONTRACT INFORMATION:	
1) Name of Project:	
2) Project Reference Number： （e.g. L/A No.）	
3) Contract Number:	
4) Package Description:	
5) Employer: (name and nationality)	
6) Contractor: (name and nationality) (If casualty(ies) is(are) belonging to Subcontractor) Subcontractor: (name and nationality)	
7) Engineer: (name and nationality)	
8) Press Report about the Accident (Name of Media, Date, and Copy of Report to be attached)	

(above to be inserted before all reports)

FIRST REPORT INFORMATION:	
1) Date and time of accident occurrence (local time):	
2) Date and time of first verbal report to Engineer:	
3) Exact location of accident occurrence:	
4) Brief background and apparent cause:	
5) (i) Number of casualty(ies)/ (ii) Information of casualty(ies) (Nationality, Age, Sex, Position, Experience Year)/ (iii) Description of injuries incurred	
6) Physical damages to the Works, Site and any properties of the third parties	
7) Present medical status of casualty(ies):	
8) Present work status:	
9) List attached information (e.g. Layout and sketch drawings, photographs, notes and report):	
10) Accident Report Submission Date	

SUBSEQUENT REPORT INFORMATION (POST-INVESTIGATION):	
1) Cause(s) of the accident:	
2) Counter-measures proposed by the Contractor to avoid recurrence of similar accidents and risks:	
3) Number of reported accident(s) occurred in the past one (1) year in the same Contract Package as the accident occurred:	
4) Number of reported near misses occurred in the past one (1) year in the same Contract Package as the accident occurred:	
5) Other Information:	

Report Prepared by: (name): _____ (sign) : _____ Report Submission Date(s) _____ Time: _____	Contractor's Health and Safety Officer (HSO)
Receipt acknowledged by: (name): _____ (sign): _____ Report Receipt Date(s) _____ Time: _____	Engineer

(above to be inserted with detail and signatures at end of each report)

CHAPTER 2: GENERAL SAFETY MEASURES

2.1 WORK ENVIRONMENT

Contractor's Personnel shall be provided with a safe and healthy occupational environment. The Contractor shall implement all necessary measures to avoid the creation of and/or any contact with Hazardous Substances, intense noise, heat, cold or similar and potentially harmful conditions or to provide protection against such conditions.

2.1.1 Hazardous Substances

(1) Definitions

Refer to the definition of Hazardous Substances in JSSS Annex 1.1 [*Definitions and Abbreviations*].

(2) Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any Hazardous Substances either existing on the Site, used in or encountered on the Works, the Contractor shall take necessary measures for work environment complying with EH40/2005 Workplace Exposure Limits, (third edition published 2018), issued by HSE, including monitoring such substances to ensure that the Short Term and Long-Term exposure limits in HSE Table 1 are not exceeded.

2.1.2 Dust

(1) Dust

Dust of any kind when present at a concentration in air shall not be equal to or greater than:

(a) 10 mg/m3 (8-hour Time Weighted Average: TWA) of inhalable dust; or

(b) 4 mg/m3 (8-hour TWA) of respirable dust.

(2) Prevention

(a) The Contractor shall prevent dust emission, by keeping the source moist and covering dust creating areas and materials with suitable dust-proof sheeting; and

(b) The Contractor shall provide all necessary Contractor's Equipment and Temporary Works to achieve this including water-bowsers, spraying equipment, extract ventilation and filtration equipment.

(3) PPE

(a) If, in the opinion of the HSO, it is not reasonably practicable to reduce dust to acceptable levels, PPE (Breathing Apparatus) shall be provided for all relevant Contractor's Personnel; and

(b) For details of PPE refer to JSSS 2.9.1 [*PPE*].

(4) Asbestos

(a) The Contractor shall be aware that asbestos causes occupational fatalities. It is commonly found in older buildings frequently in ceiling and floor cavities, insulation, sprayed coatings, floor tiles and composites, asbestos-cement sheets and roofing felt;

(b) If the scope of the Works requires removal of any of the above materials then the Contractor shall check for asbestos content, then remove and dispose of such materials in compliance with L143 Approved Code of Practice and guidance, for Managing and Working with Asbestos (second edition published 2013), issued by HSE; and

(c) If the Particular Safety Specification specifies that asbestos may exist at the Site and that the Contractor is responsible for the removal and disposal or if it is discovered during the execution of the Work and the Contractor is instructed by the Engineer to remove it, then the Contractor shall take measures in accordance with the requirements of JSSS 1.22 [*Dangerous Work*]; and comply with L143 Approved Code of Practice and guidance, for Managing and Working with Asbestos (second edition published 2013), issued by HSE; for the controlled safe removal and disposal of asbestos.

2.1.3 Poor Ventilation

(1) The Contractor shall inspect and carry out monitoring to ensure that all working areas have adequate and healthy natural ventilation.

(2) If any areas do not have adequate and healthy natural ventilation, the Contractor shall provide suitable and efficient mechanical ventilation systems with fans, ducting and all associated devices and services to improve the working environment to acceptable safe levels.

(3) If this is not completely possible then PPE (breathing apparatus) shall be used in accordance with the requirements of JSSS 2.9.1 (8) [*Respiratory Protection Equipment (RPE)*].

(4) The Contractor shall generally prohibit the use of internal combustion engines in internal areas. When the use of such engines is unavoidable, the Contractor shall provide exhaust systems which safely and efficiently collect, contain and expel exhaust gases to external areas and provide additional adequate ventilation.

2.1.4 Noise

(1) Compliance Standards

(a) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for noise exposure and control complying with OSHA 1926.52 [Occupational noise exposure]; and

コメントの追加 **[SS30]:** No. 30

(b) The Contractor shall provide equipment such as, sound level meters, noise dosimeters, or octave band analysers to determine what sound levels exist and whether they are within the levels in Table D-2 or not.

(2) Preventive Measures

To prevent noise damage to Contractor's Personnel, which may occur when noise levels exceed 90 dBA (referred to as "intense noise" in JSSS), or if for any reason sound levels cannot be determined as above the Contractor shall:

(a) Reduce sound levels through feasible administrative or engineering controls to within the levels of Table 2.1.1 [*OSHA Table D-2: Permissible Noise Exposures*], if at all possible:

Table 2.1.1: OSHA Table D-2: Permissible Noise Exposures

Duration per day, hours	Sound level dBA slow response	Duration per day, hours	Sound level dBA slow response
8	90	1½	102
6	92	1	105
4	95	½	110

3	97	¼ or less	115
2	100		

(b) If such controls are not possible or if they fail to reduce sound levels within the levels of OSHA Table D-2, provide PPE (Ear Protection) for relevant Contractor's Personnel as specified in JSSS 2.9.1 (7) [*Ear Protection*] in consideration of the noise level and length of noise exposure at the working area in accordance with the provisions of the OSHA Standard;

(c) Post warning signs at the working area to make all Contractor's Personnel aware that ear protection must be worn; and

(d) In all cases where the sound levels exceed the values shown OSHA Table D-2, a Continuing Effective Hearing Conservation Program specified in (3) below shall be implemented.

(3) Hearing Conservation Program

(a) The Contractor shall implement a hearing protection and conservation program whereby noise exposure levels are monitored in order to accurately identify any Contractor's Personnel that are exposed to noise at or above 90 dBA averaged over 8 working hours, or an 8-hour time TWA;

(b) Further to JSSS 2.1.4 the Contractor shall comply with OSHA 1910.95 [Occupational noise exposure], in respect of exposure to impulsive or impact noise;

(c) Exposure to impulsive or impact noise shall not exceed 140 dB peak sound pressure level; and

コメントの追加 **[SS31]:** No. 31

(d) The Contractor shall monitor all workers whose noise exposure is equivalent to or greater than a noise exposure received in eight (8) hours where the noise level is constantly 85 dB. The exposure measurement must include all continuous, intermittent, and impulsive noise within an 80 dB to 130 dB range and must be taken during a typical work situation. The Contractor shall choose the monitoring method that best suits each individual situation.

コメントの追加 **[SS32]:** No. 32

2.1.5 Further Requirements for Dangerous Work

Further to the requirements of JSSS 1.22 [*Dangerous Work*] and in relation to work in Confined Spaces, Hazardous Areas, or Operational Areas or in the presence of or requiring the use of Hazardous Substances or Dangerous Goods or other work which is especially and potentially dangerous, requiring the application of special skills, safety equipment, safety measures and PPE, the Contractor shall establish systems and procedures to ensure the safety of all Contractor's Personnel engaged upon or supervising or managing such Dangerous Work, and for this purpose the Contractor shall:

(1) Measure the concentration of oxygen, hydrogen sulphide, carbon dioxide, carbon monoxide, chlorine, chlorine dioxide, Trade Effluent and any other potentially harmful materials, gases and chemicals, or other work environment items before starting any work.

(2) Safely isolate the supply and flow of any Trade Effluent, or other potentially harmful materials, gases and chemicals during the period of any work and safely reconnect or continue same after the work is finished.

(3) Improve and maintain the work environment for example by mechanical ventilation and filtration if the result of the work environment measurement in (1) above violates the limits specified in this JSSS 2 [*General Safety Measures*].

(4) For further information on the removal and disposal of Hazardous Substances refer to

JSSS 1.22 [*Dangerous Work*].

(5) For further information on prohibition of entry to areas where Dangerous Work is being performed refer to JSSS 2.3 [*Prohibition of Entry*].

2.1.6 High and Low Temperatures and Humidity

(1) To avoid health hazards due to excessively hot, cold or humid working environments, the Contractor shall improve the work environment for all Contractor's Personnel by:

(a) Providing temporary covers and shade to protect workers from rain, hail, snow, sunlight and reflection from the surrounding wall and ground;

(b) Providing protection from any heat or cold source and provide adequate ventilation, heating or air conditioning for indoor working;

(c) Where permitted by the Engineer in hot climates, carrying out work during the night when temperatures and humidity are lower;

(d) Providing drinking water and supplement that allow salt replenishment at the work place;

(e) Providing a rest station with heating, air conditioning or shade near the work place, or providing other facilities equipped with accommodation that allow personnel who fall ill to lie down and recover;

(f) Allowing work breaks and reducing excessive and continuous working times; and

(g) Allowing an initial acclimatisation period for Contractor's Personnel to become used to the heat or cold.

(2) The Contractor shall ensure that workers wear moisture-permeable and loose-fitting clothing in hot climates and suitably warm, insulated and waterproof clothes in cool or cold climates.

(3) If any undesirable conditions are detected, the Contractor shall take appropriate measures to correct the situation, allowing Contractor's Personnel to rest or temporarily stop the work until the conditions improve.

(4) The Contractor shall monitor the health of Contractor's Personnel before and during the work, allowing Contractor's Personnel to take a rest and/or rehydrate as necessary and take further action if any additional abnormalities are observed.

2.1.7 Monitoring and Records

(1) The Contractor shall monitor the working environment and prepare regular daily, weekly and monthly records of dust, noise, air and water quality, inadequate natural ventilation, rainfall, snowfall, temperatures, humidity, wind speed and direction regularly throughout the Time for Completion of the Works.

コメントの追加 **[SS33]:** No. 33

(2) The procedure for preparation and submission of such records shall be as stated in JSSS 1.32 [*Health and Safety Records*].

(3) The Contractor's monitoring and recording shall also cover:

(a) The pre-existent conditions for all periods of Dangerous Work;

(b) Dust at work places where excessive dust and waste material such as dirt, rocks, minerals, metals, carbon, cement, etc. is generated;

(c) Noise levels at work places that generate intense noise;

(d) Ventilation volume, temperature and concentration of carbon dioxide, carbon monoxide, oxygen, hydrogen sulphide, other toxic or dangerous gases at work places including tunnels and deep pits and Confined Spaces; and

(e) Illuminance at work place and walkways.

(4) The above monitoring shall be conducted separately from the environmental monitoring that may be required by the Laws of the Country and any environmental monitoring that may be separately specified in the Contract.

(5) For the following measurement items, if the following limits are violated, the Contractor shall take the measures prescribed in JSSS 1.22 [*Dangerous Work*], JSSS 2.1.5 [*Further Requirements for Dangerous Work*] and JSSS 2.3 [*Prohibition of Entry*].

(a) Values of limits of measurement items:

(i) Oxygen concentration less than 19.0% and more than 23.5%;

(ii) Hydrogen sulphide concentration more than 10 ppm (short-term exposure limit) or 5 ppm (long term exposure limit);

(iii) Carbon dioxide concentration more than 15,000 ppm (short-term exposure limit) or 5,000 ppm (long term exposure limit); and

(iv) Other Hazardous Substances either existing on the Site, used in or encountered on the Works: values of limits for other substances given in EH40/2005 Workplace Exposure Limits (third edition published 2018), issued by HSE, Table 1.

(b) Combustible gas and vapor concentration: in excess of 10% of the lower limit of flammability.

(6) The Contractor shall also monitor any vibration, settlement and other adverse effects arising out of the execution of the Works to ascertain if these are causing any adverse effect to the Works or to Other Properties whilst ensuring that no damage or weakening is caused.

(7) Monitoring shall be accomplished by the Contractor through regular inspection, measurement, survey, instrument monitoring and recording as determined by the nature and scope of the Works taking account of any additional requirements which may be specified in the Particular Safety Specification.

(8) Works that require monitoring shall include the following where any risk of damage is perceived by the HSO or Engineer:

(a) Excavation Works;

(b) Foundation Piling Works;

(c) Ground improvement;

(d) Temporary ground dewatering;

(e) Temporary Works such as major items of Earthwork Support, Cofferdams and the like; to demonstrate that they are performing safely, to the designed limits and for the intended purpose;

(f) Other parts of the Works required to evidence the Contractor's compliance with the Contract; and

(g) Other parts of the Works which may be specified in the Particular Safety Specification.

(9) The Contractor shall prepare a monitoring plan as a part of the Safety Plan or Method Statement for the above Works which shall describe:

(a) The Contractor's proposed monitoring criteria for vibration, settlement and all other potential effects of the Works, which by the Contractor's own calculations will ensure that no damage or weakening is caused to Other Properties;

コメントの追加 **[SS34]:** No. 34

コメントの追加 **[SS35]:** No. 35

(b) The types, locations and numbers of monitoring instruments and other equipment;

(c) The measurement frequency and recording methods; and

(d) The countermeasures to be applied when the actual measured values are close to or exceed the various minimum, intermediate and maximum criteria.

(10) The Contractor shall:

(a) Provide and maintain all survey equipment, monitoring and recording equipment to provide comprehensive, accurate and contemporary or live data with records, showing the performance characteristics of the Works;

(b) Provide qualified staff to perform the monitoring;

(c) Maintain and calibrate the monitoring instruments and equipment as necessary throughout the execution of the Works;

(d) Perform survey and monitoring on a regular basis throughout the execution of the Works;

(e) Confirm the occurrence and extent of any adverse effect arising out of the execution of the Works by means of regular inspections of all Other Properties;

コメントの追加 **[SS36]:** No. 36

(f) Take the measures prescribed when necessary to comply with the Contractor's obligations, propose remedial measures and implement such measures after receiving the consent of the Engineer;

(g) Evaluate the measurement results and modify the monitoring criteria as necessary; and

(h) Submit an evaluation report if necessary with any changes to the Safety Plan for Works to the Engineer before proceeding with the Works.

(11) Requirements for instrumentation systems shall be as follows:

(a) The Contractor shall select instruments and measurement methods that meet the purpose of the monitoring;

(b) The Contractor shall determine locations and numbers of measurement points which meet the purpose of monitoring and need for safety management. The locations of measurement shall be where measurement can be continuously made throughout the period of working;

(c) The instrumentation shall be regularly calibrated and protected against damage by the Contractor;

(d) The HSO and other relevant Contractor's Personnel shall analyse the data and take all necessary corrective action consequent to such monitoring to ensure the continued compliant and safe performance of the Works; and

(e) The Engineer shall be invited to attend the inspections and data collection to ensure the Contractor's compliance in accordance with JSSS 1.10 [*Engineer's Safety Representative*], JSSS 1.11 [*Safety Compliance Instructions from the Engineer*] and JSSS 1.16 [*Joint Site Safety Inspections*].

(12) Management based on Monitoring and Inspection

(a) Management by Visual Inspection:

If and when the Contractor finds any irregularity through visual inspection, the Contractor shall take necessary measures in accordance with the degree of abnormality, including detailed research, urgent countermeasures, evacuation of workers.

(b) Management by Instrument Measurement:

Unless otherwise specified in the Particular Safety Specification, the Contractor shall determine control limit values based initially upon the allowable displacement or stress in the design, then the following stepwise control values shall be established by the Contractor and necessary measurement and related actions shall be taken.

The Contractor shall provide the following three (3) critical limits in his arrangements for the performance of the Works or in his design of the Temporary Works, and shall take appropriate action when any of these limits is reached:

(i) Primary Limit:

When measured values reach this limit, the Contractor shall increase the degree of care on the incident over inspections and commence preparing countermeasures which will be implemented if and when the measurement value reaches the Secondary Limit and obtain the Engineer's consent for such countermeasures.

The Contractor shall submit the measured values on a weekly basis to the Engineer unless otherwise instructed by the Engineer.

(ii) Secondary Limit:

When measured values reach this limit, the Contractor shall stop the relevant part of the Works and implement the countermeasures.

(iii) Control Limit:

When measured values reach this limit, the Contractor shall immediately stop the relevant part of the Works, advise all affected persons, prohibit entry of any unauthorised persons to the affected area(s), take counter measures to prevent failure, review and revise the Method Statement and Safety Plan, and comply with the Engineer's Instructions before proceeding.

(13) Contractor's Responsibility against damage to Property

Notwithstanding the requirements of this Clause of JSSS, the Contractor is reminded of his overall responsibility under the Contract in respect of damage to property.

The Contractor shall satisfy himself that the monitoring criteria and requirements specified above, or in other respective Chapters of JSSS and/or in the Particular Safety Specification, are sufficient to comply with his obligations under the Contract and he shall take any additional measures necessary to avoid damage to property.

2.2 RISK CONTROL AROUND THE SITE

2.2.1 General

(1) The Contractor is reminded of his obligations under GC 4.8 [*Safety Procedures*] and GC 4.22 [*Security of the Site*] to keep any unauthorised persons off the Site, and without prejudice to such obligations the Contractor shall take all necessary further measures under this Section to prevent any such unauthorised persons (including third parties, neighbours and particularly children) who may for example be living or working around the boundary of the Site or adjacent thereto, from entering the Site.

(2) In addition, the Contractor shall help to maintain communications with the local community near the Site in accordance with JSSS 2.2.6 [*Community Relations*].

(3) In addition to taking necessary action to keep any unauthorised persons off the Site the Contractor shall fully inform the relevant local organisations (e.g. police force) and if necessary request assistance to remove any trespassers from the Site. When requested by the Contractor, the Employer shall provide reasonable assistance to coordinate with the local organisations (including the police force).

コメントの追加 **[SS37]:** No. 37

(4) Such measures shall include (but are not restricted to) the following requirements of this Section.

(5) The Contractor shall also prevent access to the Site by any persons, including Contractor's and Employer's Personnel and any others who are under the influence of drink or drugs and also to prevent alcohol and drugs being brought onto the Site.

コメントの追加 **[SS38]:** No. 38

2.2.2 Working Area Perimeter

(1) Unless otherwise specified in the Particular Safety Specification, the Contractor shall:

(a) Enclose the perimeter of all working areas with secure fencing to prevent access to the Site by unauthorised persons;

(b) Maintain all such fencing in good condition, until such fencing is no longer needed and reinstate all affected areas;

(c) Provide secure entry points with lockable gates or barrier;

(d) Provide and maintain signs clearly advising/warning against entry; and

(e) Provide watchmen and lighting where, when and to the extent necessary to apprehend and evict any unauthorised persons (particularly children) from the working area, where such persons have breached the Site Perimeter and working area perimeter fencing.

(2) Unless otherwise specified in the Particular Safety Specification, working area perimeter fencing shall be temporary, constructed of new and durable materials and fit for the purpose intended.

(3) Full details of working area perimeter fencing including scope, dimensions and specifications shall be given in the Method Statement.

(4) The Contractor shall provide fall prevention measures such as temporary covers or barriers, with lighting and warning signs for any excavations outside the working area perimeter.

2.2.3 Measures for Road Occupation

(1) Before the Contractor carries out work on, in or under a public road, or uses it for access to the Site, based on the prior coordination with the relevant authorities by the Employer, in order to ensure safe and smooth traffic flow on the road, the Contractor shall:

(a) Prepare a road usage plan and submit it to the relevant authorities, and obtain necessary permits, prior to road use;

(b) Obtain the approval and necessary permits of the relevant authorities before any road closure, diversion or other traffic restrictions are applied;

(c) Take necessary measures to ensure safe and smooth traffic flow on the road during the entire road usage period; and

(d) Take safety measures specified in JSSS 2.2.2 [*Working Area Perimeter*].

(2) The Contractor shall provide a Spotter (refer to JSSS 2.4 [*Spotters*] full time upon the Works (including all non-working periods) so that the Contractor's Personnel and the general public including road users, pedestrians and all others are effectively informed, controlled and protected against accident.

2.2.4 Temporary Road Signs

(1) For disseminating necessary information on roads adjacent to the Site, the Contractor shall:

(a) Provide standard road signs in the same colours and format as those used by the relevant authorities in the Country such as construction signs, direction, speed restriction, detour and roadwork signs;

(b) Signs shall be set in suitable places so as to give due warning, information and guidance to road-users and pedestrians alike; and

(c) Signs shall be fit for purpose, fixed firmly so as not to break, fall or otherwise be damaged due to vibration, wind or other natural causes.

(2) Maintain the various signs regularly, including repairing, painting and cleaning. Ensure that all are clearly visible, well-lit or made of reflective materials so that they can be seen clearly from a distance at night.

2.2.5 Traffic Accident Prevention at Site Entrance

(1) In order to prevent traffic accidents occurring at or near the Site entrance, the Contractor shall:

(a) Provide warning signs adjacent to the Site entrance to inform drivers on the public road that the Site entrance exists and to inform of the possible emergence of construction traffic/equipment;

(b) Provide temporary traffic signals or Spotters for safe control of traffic (including construction traffic) and Contractor's Equipment, Contractor's Personnel and the general public including road users, pedestrians and all others to protect against accident;

(c) Provide designated areas for anyone entering the Site to board or be discharged from public and private transport;

(d) Provide pedestrian crossings and passages with Spotters or traffic signals; and

(e) Give priority to pedestrians and passing vehicles at the entrance.

2.2.6 Community Relations

(1) In order to maintain communications and improve safety for the local community near the Site, the Contractor shall:

(a) Cooperate with the Employer and assist in dissemination of comprehensive information about the Project to the nearby community; and

(b) If so required by the Particular Safety Specification, Conduct traffic safety and awareness activities for the local community.

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(2) The Contractor shall ensure that all Contractor's Personnel are informed of the safety rules and any precautions regarding the safe passage of construction vehicles/equipment especially when children are arriving at or leaving from school.

(3) The Contractor shall report immediately to the Engineer if the local community raises any complaints or issues any requests to the Contractor.

2.3 PROHIBITION OF ENTRY

2.3.1 General

(1) The Contractor shall prohibit unauthorised personnel from entering areas where Dangerous Work is being undertaken.

(2) For general requirements of Dangerous Work refer to JSSS 1.22 [*Dangerous Work*].

(3) "Unauthorised personnel" in this context shall mean Contractor's Personnel, Employer's Personnel and any other persons who have not been properly trained or who are not properly equipped with PPE (including rescue equipment) and who are not carrying and displaying an official permit issued to them by the HSO, for that specific work place in accordance with JSSS 1.23 [*Permit to Work System – Dangerous Work*].

(4) Workers assigned to Dangerous Work shall be subject to the Permit to Work System described in JSSS 1.23 [*Permit to Work System – Dangerous Work*].

2.3.2 Demarcation and Requirements

(1) The Contractor shall clearly demarcate all areas where Dangerous Work is being carried out by the use of appropriate fencing, barriers, signage and lighting and shall control access to such areas with the full-time assignment of a Spotter.

(2) The Spotter shall be established outside the working area, and shall prevent the entry of unauthorised personnel and shall constantly communicate with and monitor the safety of assigned workers. The Spotter shall be equipped with radio or other efficient means of communication to act as a liaison with other relevant Contractor's Personnel.

(3) No-one, no matter their position of authority, should be allowed to enter, if not so authorised to do so and the Contractor shall ensure that Spotters do not face any adverse repercussions because of a refusal to allow access.

2.4 SPOTTERS

2.4.1 Definitions

For the definition of "Spotter", refer to JSSS Annex1.1 [*Definitions and Abbreviations*].

2.4.2 Duties

Duties include for example:

(1) Preventing unauthorised personnel from entering areas where Dangerous Work is being carried out.

(2) Giving appropriate guidance and signals during operation of Contractor's Equipment to prevent the equipment tipping, overturning or falling.

(3) Giving appropriate guidance and signals to prevent Contractor's Personnel from being struck or pinned by Contractor's Equipment.

(4) Assisting drivers of vehicles including trucks and operators of other Contractor's Equipment in positioning their vehicles particularly when manoeuvring.

(5) Directing operators and drivers to prevent Contractor's Personnel, Contractor's Equipment, Goods in transit, transport and the like from coming into contact with Overhead Services as defined in JSSS 3 [*Existing Underground, Concealed and Overhead Services*] when working within close proximity and preventing same from encroaching upon minimum allowable distance from Overhead Services.

(6) Controlling pedestrian and vehicular traffic, Contractor's Personnel and Contractor's Equipment on roads and footpaths on or adjacent to the Site, adjacent to buildings, Operational Areas, places with poor visibility, slopes and vertical drops, places where there is risk of falling or landslide and places where excavation and transporting equipment perform Excavation Works close to workers.

(7) Monitoring working locations and conditions and preventing any persons from entering areas where Dangerous Work is being carried out or where there is any risk of potential injury and accident.

(8) Any other similar duties and assistance.

2.4.3 Placement

(1) The Contractor shall provide Spotters as appropriate to the Site situation and the work methods employed.

(2) The Contractor shall ensure that the Spotters are informed about the Site conditions and accident prevention.

2.4.4 Safety

The Contractor shall:

(1) Ensure the safety of Spotters when directing vehicles or Contractor's Equipment.

(2) Ensure that Spotters and drivers agree on hand signals before assisting with vehicle manoeuvring.

(3) Instruct Spotters to maintain visual contact at all times with the driver during vehicle manoeuvring.

(4) Instruct drivers to stop manoeuvring immediately if they lose sight of the Spotter.

(5) Not give Spotters additional duties while they are already acting as Spotters.

(6) Instruct Spotters not to use personal mobile phones, personal headphones, or other items which could pose a distraction during spotting activities.

(7) Provide Spotters with high-visibility clothing, especially during night operations.

2.4.5 Signals

(1) To avoid the risk of injury to the Contractor's Personnel when operating Contractor's Equipment, the Contractor shall establish a standardised signal system and appoint a Spotter to give necessary signals to the Contractor's Personnel.

(2) The Contractor shall ensure that all Contractor's Personnel understand and comply with the signals relating to their assigned work task.

(3) The Contractor shall inform and remind all Contractor's Personnel including those designated as Spotters, of the established standardised signal system as follows:

(a) By training all personnel when they first start work at the Site;

(b) By re-confirming with the all personnel in the TBM before the start of work each day; and

(c) By posting signboards on Site where required showing the standardised signals and placing a smaller-sized sticker version directly on the concerned Contractor's Equipment.

2.4.6 Qualification of Personnel

The Contractor shall ensure that all Spotters possess sufficient experience and ability and are adequately trained and supervised to perform their duties.

2.4.7 Communication Tools

The Contractor shall, when necessary, provide and maintain any necessary equipment such as hand-held radios, to ensure effective and safe communications and train all Spotters in their use.

2.4.8 PPE

The Contractor shall ensure that all Spotters are provided with PPE including hats, whistles, high visibility jackets, flags, illuminated batons, etc. to safely and adequately perform their duties.

2.5 FALL PREVENTION

2.5.1 General Items

(1) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for fall prevention complying with OSHA 1926 Subpart E [Personal Protective and Life Saving Equipment], Subpart M [Fall Protection] and the further requirements for fall protection for workers contained in the following Subparts of OSHA:

(a) OSHA 1926 Subpart L [Scaffolds];

(b) OSHA 1926 Subpart CC [Cranes and Derricks in Construction];

(c) OSHA 1926 Subpart R [Steel Erection];

(d) OSHA 1926 Subpart S [Underground Construction, Caissons, Cofferdams and Compressed Air];

(e) OSHA 1926 Subpart V [Electric Power Transmission and Distribution]; and

(f) OSHA 1926 Subpart X [Stairways and Ladders]

(2) This Section provides fall prevention solutions for a typical range of example circumstances but this is not intended to be restrictive in extent. The Contractor shall provide fall prevention solutions wherever demanded by the nature of the particular part of the Works.

(3) As a general rule, the Contractor shall take Personal Fall Restraint System (PFRS) measures wherever practicable rather than Personal Fall Arrest System (PFAS) measures.

2.5.2 Height Thresholds

The threshold for fall protection in construction work is 2 m.

The Contractor shall provide fall protection for all personnel, removing all fall hazards whenever any personnel are working 2 m or more above a lower level.

2.5.3 Facilities for Ascending and Descending

When carrying out work at heights of 2 m or more, the Contractor shall provide facilities that enable the Contractor's Personnel to safely ascend and descend from such work levels.

2.5.4 Risk Assessments

(1) Where there is any risk of fall for any part of the Works at the Site, the Contractor shall conduct a pre-assessment of the various types of fall protection systems to be used and the selected alternatives shall be shown in the Safety Plan.

(2) In advance of the commencement of any parts of the Works, the Contractor shall carry out such further risk assessment as necessary, including checking the following and recording the results:

(a) Working areas and the conditions of adjacent areas;

(b) Position, condition and surroundings at each anchorage for separately securing working line, lifeline or nets;

(c) Status of access leading to working areas and any anchorages; and,

(d) The presence or absence of protrusions where there is a risk of cutting or chafing of working line or lifeline or other fall prevention systems and their position and condition.

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2.5.5 Handrails

(1) The Contractor shall provide handrails at places where there is risk of fall.

(2) Handrails shall be complete with top-rails, minimum 85 cm high and mid-rails at a height of 35 – 50 cm.

(3) Top-rails shall be designed to withstand 883 N of horizontal force and mid-rails 686 N of horizontal force and sufficient uprights shall be provided to sustain these forces.

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(4) Handrails shall be fit for purpose, of rigid and sound condition, securely fixed, without excessive corrosion, deformity or damage of any kind.

(5) If handrails are temporarily removed for example to permit work to be carried out, the Contractor shall provide alternative safety measures including for example:

(a) Displaying appropriate warning signs;

(b) Assigning a Spotter to direct non-essential Contractor's Personnel away;

(c) Providing alternative fall prevention systems to Contractor's Personnel in that area including for example PFRS or PFAS or safety nets;

(d) Prohibiting entry to the working area of any unauthorised Contractor's Personnel; and

(e) Handrails shall be restored immediately after the necessity for removal has ended.

2.5.6 Toeboards

(1) Toeboards shall be provided to bottom of all handrails to prevent risk of Falling Objects.

(2) Toeboards shall be minimum 10cm high from top edge to the level of the Working Platform, runway or ramp.

(3) Where material is piled to such height that a 10cm toeboard does not provide protection, panelling from floor to mid-rail, or to top-rail shall be provided.

2.5.7 Preventing Falls from Walkways

(1) Walkways

For the purposes of interpretation:

"walkways" mean route or passage for safe movement of pedestrians including walkways, bridge type walkways, covered walkways, ramps, ladders and stepladders.

(2) Safe Routes

The Contractor shall provide walkways leading to, within and around the Site and any working areas within the Site.

These shall be designed and constructed to ensure the safe passage of Contractor's Personnel and shall be provided with temporary lighting and effectively maintained at all times.

The Contractor shall display signs clearly indicating the location, intended use and any restrictions and extent with directions so that the Contractor's Personnel can adhere to the routes.

Other construction activities will be prevented from obstructing these routes.

(3) Handrails

At any point where there may be a risk of Contractor's Personnel falling from temporary walkways, the Contractor shall provide handrails as specified in JSSS 2.5.5 [*Handrails*].

Alternatively, the Contractor shall provide fall prevention equipment with the same or better functionality.

2.5.8 Preventing Falls by Providing Temporary Working Platforms

(1) The Contractor shall provide a temporary Working Platform where Contractor's Personnel are carrying out any operation at a height 2 m or more above the base and where there is any risk that Contractor's Personnel may fall.

(2) Temporary Working Platforms shall be constructed from steel tubular Scaffolding, system Scaffolding or other safe and secure types.

(3) Temporary Working Platform shall always have handrails.

(4) If handrails are temporarily removed for construction purposes, the Contractor shall take the measures described in JSSS 2.5.5 [*Handrails*].

2.5.9 Preventing Falls from the Ends and Openings of Working Platforms

(1) The Contractor shall take measures to prevent any falls from ends, edges and around any openings in Working Platform.

(2) The Contractor shall provide handrails to all ends, edges and openings.

(3) Alternatively, the Contractor may place covers over any openings, each of sound construction and designed with a bearing capacity of at least twice any likely superimposed load, including any materials, Plant or Contractor's Personnel.

(4) If for any reason it is not possible to provide handrails around working areas, or to provide covers or when covers are temporarily removed for construction purposes, the Contractor shall take the measures described in JSSS 2.5.5 [*Handrails*].

2.5.10 Measures for Preventing Falls during Excavation Works

The Contractor shall take all necessary measures to prevent falls during Excavation Works including for example:

(1) Providing fall prevention systems including temporary handrails or barriers, PFRS, PFAS or rope access.

(2) Taking appropriate measures to ensure that earth slopes do not collapse due to the fixing of any fall prevention system or to any contact of the ropes with the slope surfaces.

(3) Providing safe measures to allow Contractor's Personnel to escape from or move around any excavated slope. If it is not possible to take such measures due to the nature of the work, the Contractor shall install main ropes and have Contractor's Personnel use PFRS or PFAS. In such case, the main ropes shall be anchored securely to prevent them becoming loose or detached.

(4) Installing handrails where the slope shoulder is used as a walkway or passageway.

(5) Installing safe crossings over trench excavations at a maximum of 30m intervals and prohibiting all Contractor's Personnel from crossing on the shoring system.

(6) Providing safe means of access and egress using stairways, ladders, ramps and the like to all excavations such as trench, basement, footing excavations, which are 1.2 m or more in depth, generally requiring no more than 7.5m of lateral travel for Contractor's Personnel.

(7) Prohibiting all Contractor's Personnel from crossing on struts of Earthwork-Support.

2.5.11 Measures for Preventing Falls during Rope Access Work

(1) The Contractor shall take all necessary measures to prevent falls during rope access work including for example:

(a) Installing a lifeline to which the PFAS is attached in addition to the working line to which the PFRS is attached; and

(b) Ensuring that the working line, lifeline and harness have sufficient strength and that they have not suffered any damage, abrasion, deformation or corrosion and that the Contractor's Personnel are trained in the use and that they use them properly.

(2) In relation with the working line, lifeline and harness, the Contractor shall ensure that:

(a) The working line and lifeline are securely anchored to independent rigid supports vertically above the work location and cannot be detached;

(b) The working line and lifeline are of sufficient length to allow the Contractor's Personnel to move up and down safely;

(c) Measures have been taken to prevent cutting or chafing, such as providing covers, where there is a risk that the working line or lifeline may be cut or chafed due to protrusions;

(d) That the working line is anchored to two or more independent strong supports; and

(e) The positioning device shall be securely connected to the working line with connectors and the connecting devices shall be compatible with the working line used.

(3) The Contractor shall provide the following particular information in the Safety Plan and shall ensure that all Contractor's Personnel engaged in rope work are fully qualified and informed when doing so, including advising them of:

(a) Location of each anchorage used to secure the working line and lifeline;

(b) Types and strengths of the working line and lifeline to be used;

(c) Lengths of the working line and lifeline to be used;

(d) Protrusions where the ropes may be cut or chaffed and measures to prevent this; and

(e) Measures to prevent Contractor's Personnel engaged in securing the working line and lifeline to the anchorages from falling.

(4) The Contractor shall also provide measures to prevent the risk of accident to any personnel from Falling Objects; by using covered walkways and PPE.

(5) The Contractor shall appoint an Operation Leader who shall work with the rope work team at all times throughout their assignment and direct the work based on the Safety Plan and perform the following duties:

(a) Inform all Contractor's Personnel engaged in rope work of the content of the Method Statement and Safety Plan before commencement of the work;

(b) Check all equipment to be used on the day prior to commencement of the work, and repair, maintain or replace any equipment immediately if any defect is identified;

(c) Permit the Contractor's Personnel to commence work only after the measures have been taken to provide all working lines, lifelines, PFRS, PFAS and PPE; and

(d) Ensure Contractor's Personnel use PFRS and PFAS correctly and have them fix the PFAS to the life lines.

2.5.12 Further Measures for Contractor's Personnel

The Contractor shall take all necessary further measures to prevent falls during the Works including, for example, taking the following measures before any work commences:

(1) Conduct safety induction and education courses regarding fall risks for all Contractor's Personnel who shall work on locations and operations where there is a risk of falling.

(2) Prohibit the unauthorised removal of any fall prevention equipment and educate Contractor's Personnel on the dangers of this action.

(3) Educate Contractor's Personnel on the proper storage and management of all safety equipment, including for example PFRS, PFAS and PPE.

(4) Stop the work if there is a risk of bad weather such as strong wind, heavy rain, or snow.

2.5.13 PPE for Fall Prevention

The Contractor shall comply with the following requirements when Contractor's Personnel are subject to fall risks:

(1) The Contractor shall provide PFRS as follows:

(a) PFRS shall be the same as PFAS specified below but designed to restrict the movement of workers and prevent them from reaching the edge of or any openings in the working area and therefore eliminating the risk of a fall; and

(b) PFRS shall comprise of either a Safety Belt or Safety Harness, together with an anchorage, connectors and other necessary equipment, typically including a lanyard, lifeline and other devices.

(2) The Contractor shall provide PFAS as follows:

(a) The PFAS shall be the full harness type and shall comprise of a body harness, connectors, lanyard, deceleration device, lifeline, anchorage, or suitable combination of these;

(b) The use of a Safety Belt for PFAS is prohibited except where there is any risk of the Contractor's Personnel hitting the lower surface when the full harness type is used and the total fall clearance distance calculated as below, is less than the distance between the point at which a worker would be anchored and any lower level;

The total fall clearance distance for PFAS with a shock-absorbing lanyard is calculated as the total of free fall distance, deceleration distance, D-ring shift, back D-ring height, and safety factor. (Refer to OSHA Technical Manual General Information, Section V: Chapter 4 Fall Protection in Construction, III. Measurements for Assessing Fall Hazards and Controls, A. Total Fall Clearance Distance for PFAS.).

(c) PFAS shall withstand the total force exerted on the system by the Contractor's Personnel falling, including the weight of the system itself; and

(d) For shock absorbers, an appropriate specification and type shall be selected according to the free fall distance calculated from the Contractor's Personnel's working position (height of anchor point, length of lanyard, etc.).

(3) The PFRS and PFAS shall bear the name of the manufacturer and the date of manufacture and shall be easily visible.

(4) Inspection of any safety equipment.

Before starting work using PFRS or PFAS, the systems and anchorages to which the systems are to be attached shall be inspected and defective, damaged, worn-out or missing parts or components shall be replaced.

2.5.14 Ladders and Stepladders

For further requirements, refer to JSSS 6.4 [*Walkways*].

2.5.15 Work on Roofs and Other Areas

(1) Where Contractor's Personnel are carrying out work on roof at a height of 2 m or more, PFRS or PFAS shall be used with secure and safe anchorages.

(2) The Contractor shall, ensure that PFRS or PFAS are inspected before each use and declared safe for use with no defective, damaged, worn-out or missing parts or components.

(3) Prevention of Fall Risks on Floors, Fragile Roofs and Other Surfaces

When working on, accessing or crossing, floor or roof areas (including uncompleted areas under construction), or fragile roofs such as those covered with slates, tiles or other non-loadbearing coverings or where there is any risk of breaking and/or falling through such areas, the Contractor shall provide continuous bearing boards for workers to walk on, with a minimum width of 60 cm or sufficiently wider to provide safe transit and where necessary to spread the bearing load on the surface and avoid penetration. The boards shall be fixed together and secured to the underlying surface by tying with ropes or clips to prevent any movement.

Unless otherwise approved by the HSO, handrails shall be provided to one or both sides.

If the underlying surface or roofing is too fragile for such measures and access is required, the Contractor shall provide an independent Scaffolding boarded walkway with handrails both sides, which does not bear upon the existing roof but that is supported independently by a Scaffolding structure.

(4) Demolition or Alteration of Buildings and Structures

When carrying out demolition or alteration of buildings or structures and where there is a risk of Contractor's Personnel falling, the Contractor shall take the following measures:

(a) Appoint an Operation Leader to be engaged on the work;

(b) Safely supervise the work; and

(c) Inform and train Contractor's Personnel engaged in the said work so that they are aware in advance of the work methods and procedures.

2.5.16 Safety Nets

(1) The Contractor shall provide safety nets when workplaces are more than 7.50m above the lower ground level or water surface level and where the use of another type of fall prevention system is impractical or has been removed.

(2) Operations shall not be undertaken until the net is in place and has been inspected and tested.

(3) Nets shall extend 2.5m beyond the edge of the work surface where Contractor's Personnel may be at risk and shall be installed as close under the working surface as practical but in no case more than 7.50m below such work surface.

(4) Nets shall be hung with sufficient clearance to prevent user's contact with the surfaces or structures below. Such clearances shall be determined by impact load testing.

(5) The mesh size of nets shall not exceed 15 cm by 15 cm. All new nets shall bear a label of proof test from the manufacturer that they can withstand 23,700 Nm minimum impact resistance. Edge ropes shall provide a minimum breaking strength of 22,261N.

(6) Forged steel safety hooks or shackles shall be used to fasten the net to its supports.

2.6 FALLING OBJECTS

2.6.1 General

The Contractor shall take all necessary measures to avoid danger and prevent damage and injury to Contractor's Personnel, Employer's Personnel and any other persons including third parties that are on or adjacent to or in the vicinity of the Site whether connected with the Works or otherwise, and who may be at risk from Falling Objects.

In general, this shall be accomplished by:

(1) Providing secure temporary barriers to prevent or capture Falling Objects, designed by the Contractor to be of sufficient strength to capture all Falling Objects without perforating and where necessary shall be of an aesthetic design to be approved by the Engineer.

(2) Providing a safe means of raising and lowering Goods, tools, waste and debris.

(3) Providing an exclusion zone with temporary barriers and all other necessary measures to prevent persons and traffic from entering areas where Falling Objects could be a risk, including providing pedestrian and traffic diversions.

Exclusion zone shall also be provided where protective mesh sheets or toeboard are not installed or where they are temporarily removed due to the nature of the work.

(4) Using PPE.

(5) Providing coloured warning tape, barriers and signage warning of "DANGER FALLING OBJECTS" in addition to all other preventive measures.

2.6.2 General Preventive Measures

(1) All horizontal boarded areas of Scaffolding shall be provided with substantial and continuous toeboards to all edges in accordance with JSSS 2.5.6 [*Toeboards*].

(2) Mesh sheet (debris net) shall be provided under and around all edges to cover all openings of Scaffolding horizontal boarded areas.

(3) Continuous and secure debris nets shall be provided to vertical sides of all Scaffolding or openings of external walls where there is no Scaffolding.

(4) Safe walkways with secure roof and walls shall be provided over entrances and exits.

(5) Protective canopies, safety fans or projecting shelves shall be provided to the edge of all roofs and to all vertical faces wherever there is a risk particularly over entrance and exits, working areas, walkways and roads, including those on areas beyond the Site boundary.

(6) Protective roofs shall be provided wherever there is a risk over working areas, walkways, footpaths and roads.

(7) All protective structures including roofs, canopies, safety fans, projecting shelves over walkways shall be fit for the purpose intended and provide a secure protective barrier capable of supporting Falling Objects and of sufficient size and dimensions to give full coverage and protection.

(8) Personnel must be prevented from entering any areas below Scaffolding where there is a risk of Falling Objects through the provision of barriers and signage.

(9) If any protection is temporarily removed then a Spotter shall be assigned to prevent personnel entering the hazard area.

(10) A Spotter shall also be assigned to direct traffic and pedestrians where diversions are necessary.

(11) Use and control of mesh sheets to prevent objects from falling shall be as follows:

(a) Sheet shall have a mesh size of 12 mm or less or a mesh size corresponding to the size of expected Falling Objects;

(b) Sheet shall comply with BS 7955, composed of polyester material, reinforced as necessary to withstand the impact load of Falling Objects;

(c) Sheets that are damaged or which contain any irregularity shall not be used;

(d) If sheet is removed temporarily to suit the work operation, measures must be applied to avoid any risk of accident whilst it is removed and it must be restored immediately after the work operation is completed;

(e) Mesh sheets shall be inspected at least once a week and replaced immediately if any damage is found; and

(f) If there are any Falling Objects on the mesh sheet, these shall be removed before any work starts. The occurrence shall be reported to and investigated by the HSO to prevent any reoccurrence.

(12) When the work place is close to public or private areas, roads, footpaths, buildings or houses and the like along or outside the Site boundary and where there is any risk that Falling Objects could endanger the safety of traffic and third parties in such areas, and in addition to the above preventive measures, the Contractor shall take all responsibility, make all necessary arrangements with such third parties and/or all relevant authorities, insure, serve all notices, pay all charges and provide all necessary protective services and facilities including:

(a) Provision of mesh screens, safety fans, projecting shelves, temporary roofs over walkways or the like to protect such public or private areas, roads, footpaths, buildings or houses and all property, traffic, pedestrians and other persons thereon; and

(b) Safe and efficient diversion of all traffic and persons (in addition to the above or if the above measures cannot be taken) by providing all temporary barriers, signals, lighting and signs and placing a Spotter to direct traffic and pedestrians.

2.6.3 Falling Tools and Equipment

(1) The Contractor shall take appropriate measures to avoid the risk of injury or damage arising from dropped or falling tools including for example the following:

(a) Securing tools and materials;

(b) Use tool holsters, pouches, lanyards, etc.;

(c) Use debris nets, catch platforms or canopies to catch or deflect falling tools; and

(d) Use tethered tools, either with built-in connection points placed by the manufacturer or retrofitted connection points and connect tools to a lanyard. Tools can either be connected to a worker through a tool belt, harness or wristband, or anchored to a fixed structure.

2.6.4 Preventive Measures against Dust and Debris

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(1) For work where there is a risk of ejected or windblown dust and debris, (for example from stone crushing, concrete batching, cutting and grinding operations and the like), the Contractor shall:

(a) Enclose areas where such operations are taking place and provide protective screens or covers on storage areas;

(b) Maintain equipment and tools in good condition, use of covers and safety guards and procedures for preventing danger due to tool breakage etc.; and

(c) Ensure that workers use appropriate PPE such as head, face and eye protection to

prevent accident or injury.

(2) In strong winds and storms, the Contractor shall take measures to prevent wind-borne materials, etc. according to JSSS 2.7.3 [*Measures for Strong Wind and Storms*].

2.6.5 Preventive Measures against Dropping Objects

(1) The Contractor shall prohibit Contractor's Personnel from throwing or dropping objects (e.g. Scaffolding clips), generally and in no event from heights of 3m or above.

(2) The Contractor shall use a crane to bring objects down from heights of 3m or above. Alternatively, the Contractor may provide enclosed chutes to bring down objects and in addition, shall prohibit entry to the chute area or assign a Spotter.

(3) Chutes shall be designed to prevent objects being scattered over the surrounding area.

2.6.6 Prevention of Accumulation of Goods at Height

(1) The Contractor shall prohibit the accumulation and storage of Goods at high levels particularly on Scaffolding and in locations where such Goods are at any risk of falling due to the effect of wind, vibration, water or gradient.

(2) Goods shall generally not be stored or allowed to accumulate within 1m of platform or work floor edges and openings or the like.

(3) When temporarily stored at height, Goods shall be restrained by ropes or sheets to prevent them from falling or slipping.

(4) Goods that are likely to scatter or spread, shall be suitably constrained by tying, boxing or bagging.

2.6.7 Working Above or Below Other Persons

(1) As a general and prevailing rule, the Contractor shall prohibit his workers from working concurrently above or below other persons. To achieve this the Contractor shall carefully coordinate the work location, content, timing of the work operations between his assigned workers.

(2) In exceptional circumstances where this is unavoidable due to the nature of the work, the Contractor shall increase the supervision and the safety procedures described in this Section to ensure that the risk from Falling Objects is avoided. Workers shall be given further training, provided with PPE and additional working equipment (e.g. slings for tools, safety nets and/or hanging bags) in order to provide additional protection and a Spotter shall be assigned while such overhead operations are being carried out.

2.6.8 Loose Rock, Boulders and the like

(1) If loose rock, boulders, trees and the like, are positioned above working areas and where there is any risk that these may pose a danger to Contractor's Personnel or Contractor's Equipment working below, unless otherwise instructed by the Engineer, the Contractor shall carefully remove such items and if necessary:

(a) Propose further safety measures to the Engineer;

(b) Consult with the Engineer and if appropriate, obtain the Engineer's Instructions for the required further measures to be taken, such as installation of temporary protective barriers; and

(c) Prohibiting Contractor's Personnel from entering the working areas until the above items have been removed or the further measures have been taken.

2.7 ADVERSE WEATHER REQUIREMENTS

2.7.1 Preventive Measures

(1) Whenever adverse climatic conditions render it dangerous to continue, the Contractor shall stop affected work at the Site, take preventive measures to ensure the safety of all Contractor's Personnel engaged on that work and inform the Engineer accordingly.

(2) Before, during or after adverse climatic conditions, the Contractor shall:

(a) Stop work at heights if there is any danger of falling;

(b) Stop work if there is a possibility that such work may be dangerous due to possibility of electrical shock, slippery conditions or poor visibility and the like during rain, snow or fog, and inform the Engineer accordingly;

(c) Inspect the Works and all Goods intended to be incorporated in the Works or used thereon (including any temporary structures) for damage and risk of causing any danger before resuming work. If any damage or risk is found, the Contractor shall immediately take necessary action to prohibit entry in accordance with JSSS 2.3 [*Prohibition of Entry*], inform the Engineer accordingly and if appropriate, request his instructions; and

(d) Inspect Goods for damage and risk of any danger before resuming work. If any damage and risk is found, use Contractor's Equipment and Temporary Works only after making the necessary repairs or replacement.

2.7.2 Measures for Heavy Rain

When heavy rainfall takes place or is anticipated at the Site and the surrounding area, the Contractor shall:

(1) Take measures to prohibit entry in accordance with JSSS 2.3 [*Prohibition of Entry*] at the following locations:

(a) Places where landslides could be anticipated;

(b) Places where there is a risk of flow of material and equipment and soil runoff; and

(c) Places where there is a risk of damage due to flash floods, lake or river flooding.

(2) Take measures to prevent the Goods from being submerged, washed away or overturning, for example preparing, wherever possible, stock yard at a safe place, evacuating materials and equipment to a safe place, etc.

2.7.3 Measures for Strong Wind and Storms

For strong wind and storms at the Site and the surrounding area, the Contractor shall:

(1) Take measures to prevent capsize, overturn or movement of Contractor's Equipment particularly tall equipment such as cranes, pile drivers, pile drilling rigs and the like.

Where possible, lower the boom of tall equipment and tie to a secure anchor with steel cable to ensure stability and prevent any risk of overturning.

(2) Always store and/or if necessary evacuate Goods to a sufficient distance away from overhead power and communication lines to prevent damage and injury.

(3) Take the following measures, as necessary, for Scaffolding and Working Platforms.

(a) Remove or furl mesh sheets to reduce wind load;

(b) Prevent Scaffolding from collapsing or sliding by dismantling Scaffolding or adding or reinforcing wall connectors;

(c) Dismantle or reinforce Scaffolding projecting from buildings by supporting ropes, cables or additional struts and bracing; and

(d) Securing Goods on Scaffolding, or lowering them to ground level.

(4) Discontinue work at elevated places.

(5) Take measures to prevent scattering of Goods, waste and debris.

2.7.4 Measures for Heavy Snow and Ice

For heavy snow or ice at the Site and the surrounding area, the Contractor shall:

(1) Take fall prevention measures in snow such as setting of poles or red flags to demarcate roads, footpaths and waterways.

(2) Take fall prevention measures for workers in icy conditions or snow, by ice or snow removal on roads, platforms, stairs, ramps, slopes, passages, Scaffolding, canopies, safety fans, projecting shelves and the like.

(3) Remove snow from roofs, canopies and signs, notice boards.

(4) Prohibit works on Scaffolding, Working Platforms or staging if snow or ice is present except after its careful removal.

2.7.5 Measures for Lightning

(1) The Contractor should recognise lightning as an occupational hazard and take precautions to prevent exposure of all Contractor's Personnel thereto.

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(2) Before commencing any outdoor work, the HSO shall ensure that local weather forecasts have been checked and wherever necessary and possible, that work has been rescheduled to avoid workers being caught outside in hazardous weather conditions.

(3) When working outdoors, Operation Leaders and workers shall continuously monitor weather conditions so that wherever possible they remain aware of the likelihood of thunderstorms.

(4) The HSO shall identify and inform workers of buildings to be used for shelter when heard thunder is heard or lightning is observed. Such shelters shall be fully enclosed and preferably shall have earthed electrical wiring and plumbing. Workers shall remain in shelters for at least 30 minutes after hearing the last noise of thunder.

(5) If suitable buildings are not immediately available, workers shall be instructed to shelter in enclosed rubber-tyre vehicles with windows closed and to remain there for at least 30 minutes after hearing the last noise of thunder. Tracked excavators, cranes or similar types of Contractor's Equipment shall not be used.

(6) The Safety Plan shall include lightning safety procedures which shall:

(a) Inform of all required actions when personnel hear thunder or see lightning, or perceive other signs of approaching thunderstorms;

(b) Indicate how information is to be disseminated amongst personnel on the Site;

(c) Identify locations and requirements for safe shelters;

(d) Indicate response times necessary for all personnel to reach safe shelters; and

(e) Specify methods to determine when to stop and resume affected work activities.

(7) The Contractor shall display signs with information on lightning safety.

(8) The Contractor shall provide adequate training to all personnel on lightning safety with the safety induction training required by JSSS 1.20 [*Safety Induction Training*].

(9) Unless otherwise determined to be safe by the HSO, the Contractor shall prohibit any hazardous exposed work and external work at heights during thunder storms including for example:

(a) work on or from Scaffolding;

(b) work on or by cranes or hoists or similar Contractor's Equipment;

(c) work on tops of walls, exposed, elevated slabs or roofs;

(d) work on the erection or removal of steel structures; and

(e) Work on the erection of steel reinforcement and other metal components.

2.7.6 Measures for Earthquake and Tsunami

To the extent that time is available and forewarning is given, the Contractor shall evacuate workers to the designated meeting place in the event of earthquakes or tsunamis when the relevant authority issues a warning for the occurrence or prediction of earthquakes or tsunamis.

2.7.7 Inspection of Temporary Works after Adverse Weather and Earthquake

Following the occurrence of any adverse weather or after any earthquake and before re-commencing any work, the Contractor shall:

(1) Perform a visual inspection.

(2) Check all measured values of any instruments to ensure the safety of Temporary Works.

(3) When abnormality is found in instruments, recalibrate or replace them.

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(4) If any damage or fault is found in the TW, immediately carry out repair, replacement and/or reinforcement works, as necessary.

(5) Keep the Engineer informed of inspection and monitoring results.

2.8 FIRE PREVENTION

2.8.1 Fire Prevention and Firefighting Facilities

Unless otherwise specified in the Particular Safety Specification, the Contractor shall take measures and provide facilities for fire prevention and fire-fighting and shall ensure that such measures are readily available and at all times at the Site and at any offices and accommodation for Contractor's and Employer's Personnel.

(1) Fire Response Plan:

The Contractor shall:

(a) Prepare a Fire Response Plan detailing the proposed fire prevention and fire-fighting measures and facilities and include this as a part of the Safety Plan;

(b) Designate a person (or persons) responsible for fire prevention, fire-fighting and also for evacuation in the event of a fire;

(c) Prepare a firefighting training plan as a part of the fire prevention and fire-fighting plan; and

(d) Carry out all training and keep records of such training in accordance with JSSS 1.19.6 [*Records of Education and Training*].

(2) Fire Response Measures and Facilities:

The Contractor shall:

(a) Provide fire hoses, hose-reels, fire hydrants and similar equipment, and temporary water supply where considered necessary by the HSO;

(b) Provide fire extinguishers and fire blankets according to the area and purpose of use, such as for ordinary fires, oil fires, electric fires and the like;

Fire extinguishers shall be regularly inspected, refilled, serviced and certified as such by a qualified and independent safety company approved by the Engineer;

(c) Prohibit smoking anywhere on the Site other than designated smoking areas, and implement effective fire prevention measures by placing buckets filled with water or sand in smoking and other dangerous areas; and

(d) Train Contractors Personnel and ensure that a team or teams is available to respond in the event of a fire and in advance or in place of attendance by any public firefighting service.

2.8.2 Measures for Evacuation

In the event of a fire, the Contractor shall facilitate evacuation by:

(1) Creating an evacuation route map if necessary and post this in easy-to-see places.

(2) Display the evacuation routes as necessary at all work places.

(3) Install multiple evacuation routes and staircases for buildings with 2 or more floors and a capacity of 30 people or more.

(4) Establish a communication method to inform the Contractor's Personnel, Employer's Personnel and any other persons that are on the Site so that they are aware of danger and that they must evacuate due to a fire.

2.8.3 Management of Flammable and Combustible Materials

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS and unless otherwise approved by the Engineer, the Contractor shall take necessary measures for fire prevention complying with OSHA 1926.152 [Flammable liquids] and OSHA 1926.153

[Liquefied petroleum gas (LPG)] or other relevant OSHA standards for the use and storage of flammable and combustible materials and gases, including gasoline, kerosene, light oil, heavy oil, creosote oil, gear oil, cylinder oil, and other lubricating oils and organic solvents such as acetone, toluene, LPG and other gases including oxygen, acetylene etc. (hereinafter collectively referred to as "flammable and combustible materials" in this Section).

In addition, the Contractor shall:

(1) Appoint a person who is appropriately qualified, skilled and experienced in handling flammable and combustible materials, to be responsible for the storage and handling flammable and combustible materials and notify the name of such person to the Engineer.

(2) Store flammable and combustible materials in a purpose-built building or compound, fit for the intended purpose, well ventilated and secure, and protecting the stored materials from direct sunlight and extreme heat.

(3) Take measures to prohibit entry to unauthorised personnel and display signage prohibiting the use of flame.

(4) Determine handling methods of flammable and combustible materials, which shall be notified to the Engineer, and ensure Contractor's Personnel are fully aware of the methods.

(5) Provide fire prevention and firefighting facilities appropriate to the stored flammable and combustible materials.

2.8.4 Fire Prevention Measures for Electric and Gas Welding and Cutting

The Contractor shall refer to and comply with JSSS 6.8 [*Electric and Gas Welding and Cutting*] for the fire prevention requirements for electric and gas welding and cutting works.

2.9 PPE AND FIRST AID

2.9.1 PPE

(1) General

(a) Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the Contractor shall provide all necessary and required PPE free of charge, to all Contractor's Personnel, ensure that this is used properly, kept in good condition and replaced in the case of being worn-out, lost or damaged;

(b) PPE shall comply with the requirements of this Section;

(c) The Contractor shall ensure as a minimum and mandatory requirement, that all Contractor's Personnel are provided with the following PPE and the Contractor shall make sure that all Contractor's Personnel wear or use such PPE as appropriate whenever they are on the Site:

(i) Head Protection; and

(ii) Protective Footwear.

(d) The following additional PPE shall be provided whenever required by the working environment:

(i) Eye and Face Protection;

(ii) Ear Protection;

(iii) Respiratory Protection;

(iv) PPE for PFRS and PFAS (Safety Harnesses, Safety Belts and the like);

(v) Gloves; and

(vi) Body Protection.

(e) The particular requirements for PPE are not repeated in each Section of JSSS but appropriate PPE must always be provided by the Contractor; and

(f) PPE described in JSSS 2.9.1 (4) to (11) are examples only and not exhaustive, and the Contractor shall provide further PPE at his cost to the Contractor's Personnel when and where any work requires specific PPE.

(2) Additional Inspection, Testing and Maintenance

Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] and unless otherwise required by the manufacturer or approved by the Engineer:

(a) Frequently used PPE shall be inspected, tested and maintained at least once a month; and

(b) Occasionally used PPE shall be inspected before every use and tested and maintained at least once every three (3) months.

The HSO shall also conduct regular checks to ascertain any requirements for the following:

(a) Inventory and reorder supplies;

(b) Expedite any outstanding manufacturer's response on repair or maintenance issues; and

(c) Schedule of training and retraining.

(3) PPE Signage Requirements

(a) The Contractor shall display signage at specific places at the Site where the wearing of PPE is mandatory;

(b) Such signage shall include for example:

"Head Protection Must be Worn"

"Eye* Protection Must be Worn"

(* face, ear or other)

(4) Head Protection

Head protection shall protect workers' heads and necks against injury from falling or flying objects, risk of head bumping, hair getting tangled in machinery, chemical drips or splash, climate or temperature, reduce the impact from tripping or falling and protect against electric shocks.

Head protection shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.1: Applicable Standards for Head Protection

	Standard	Title of Standard
1	JIS T8131	Industrial Safety Helmets
2	ANSI Z89.1	Industrial Head Protection
3	BS EN 397	Industrial Safety Helmets

(5) Protective Footwear

Protective footwear shall protect against foot injury due to crushing by superimposed loads, impact injuries from dropped or Falling Objects, foot injuries from treading on sharp penetrating objects, injuries from electric shock and also shall increase adhesion preventing workers' from slipping and falling.

Protective Footwear shall have a variety of sole patterns and materials to help prevent slips in different conditions, including oil or chemical-resistant soles. It can also be anti-static, electrically insulating or thermally insulating, appropriate footwear shall be selected for the risks identified.

Protective footwear shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.2: Applicable Standards for Protective Footwear

	Standard	Title of Standard
1	JIS T8101	Protective footwear
2	ASTM F2413	Standard Specification for Performance Requirements for Protective (Safety) Toe Cap Footwear
3	BS EN ISO 20346	Personal protective equipment – Protective footwear
	BS EN ISO 20349	Personal protective equipment. Footwear protecting

		against risks in foundries and welding

(6) Eye and Face Protection

Eye and face protection shall protect workers' eyes and face from harmful materials (for example dust, chemicals, liquid splash, flying objects, molten metal, gas and steam, extreme light, flashes and hazardous rays, dirt and debris, etc.).

Eye and face protection can include safety spectacles, goggles, face masks, face shields, visors and the like. Selected protection shall have the right combination of /impact/dust/splash/molten metal eye and face protection for the task and shall be selected for the risks identified.

Eye and face protection shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.3: Applicable Standards for Eye and Face Protection

	Standard	Title of Standard
1	JIS T 8141 JIS T 8142	Personal eye protectors for optical radiations Personal face protectors for welding
2	ANSI Z87.1	American National Standard for Occupational and Educational Personal Eye and Face Protection Devices
3	BS EN 166 BS EN ISO 4007	Personal eye protection. Specifications Personal protective equipment. Eye and face protection. Vocabulary

(7) Ear Protection

Ear protection shall protect workers' hearing against injury from continuous, loud or Intense Noise by providing soundproofing.

The Contractor shall ensure that workers are still able to receive and immediately react to oral instructions and danger warnings when wearing ear protection.

Ear protection shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.4: Applicable Standards for Ear Protection

	Standard	Title of Standard
1	JIS T 8161	Ear protectors
2	ANSI/ASA S12.6	Methods for Measuring the Real-Ear Attenuation of Hearing Protectors
3	BS EN ISO 4869-1 BS EN ISO 4869-2	Acoustics. Hearing protectors. Subjective method for the measurement of sound attenuation Acoustics. Hearing protectors. Estimation of effective A-weighted sound pressure levels when hearing protectors are worn

	BS EN ISO 4869-3	Acoustics. Hearing protectors. Measurement of insertion loss of ear-muff type protectors using an acoustic test fixture
	BS EN ISO 4869-4	Acoustics. Hearing protectors. Measurement of effective sound pressure levels for level-dependent sound-restoration ear muffs

(8) Respiratory Protection Equipment (RPE)

RPE shall protect workers' airways, lungs and related bodily systems against damage and injury from Harmful Substances or from oxygen-deficient atmospheres when other controls are either not possible or insufficient on their own.

RPE shall be selected with due consideration of:

(a) the Hazardous Substance(s) and the concentration in the air (exposure);

(b) the form of the substance in the air (e.g. gas, particle, vapour);

(c) the type of work being carried out; and

(d) the specific wearer requirements, such as other PPE or a need for spectacles.

RPE shall be:

(a) Correct for the Hazardous Substance such that it reduces exposure to the level required to protect the wearer's health; and

(b) Correct for the wearer, task and environment, such that the wearer can work freely and without additional risks due to the RPE.

RPE shall fit properly and filters shall be of the correct type as each filter is effective for only a limited range of substances. Filters have only a limited life and shall be changed regularly to maintain performance.

When replacing parts such as filters, use only manufacturers original parts, ensure that the correct type is selected and fit in accordance with the manufacturer's instructions.

Where there is a shortage of oxygen or any danger of losing consciousness due to exposure to high levels of harmful fumes, the Contractor shall only use breathing apparatus, never a filtering cartridge.

RPE shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.5: Applicable Standards for RPE

	Standard	Title of Standard
1	JIS T 8151 JIS T 8157	Particulate respirator Powered air purifying respirator
2	BS EN 149: 2001+A1: 2009 BS EN 14593-1: 2018	Respiratory protective devices. Filtering half masks to protect against particles. Respiratory protective devices. Compressed air line breathing devices with demand valve. Devices with a full-face mask.

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3	ANSI Z88.2-2015	Practices for Respiratory Protection

(9) Safety Harnesses and Safety Belts

PPE for PFRS shall prevent the risk of workers falling from a height or sliding down slopes.

PPE for PFAS shall arrest a worker in a fall from a height or sliding down slopes.

For further requirements on PPE for PFRS and PFAS, refer to JSSS 2.5.13 [*PPE for Fall Prevention]*.

PPE for PFRS and PFAS shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.6: Applicable Standards for PPE for PFRS and PFAS

	Standard	**Title of Standard**
1	JIS T8165	Personal fall-arrest systems
2	ANSI Z359.0 to Z359.16	ANSI/ASSE Z359 Fall Protection and Arrest Standards Package
3	BS EN 361	Personal protective equipment against falls from a height. Full body harnesses

(10) Gloves

Gloves shall protect workers' hands from electric shocks, sparks during welding and fusing work, molten metal, heated metal, etc., and shall reduce the vibrations transmitted to workers' hands by tools, machines, etc.

Gloves shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.7: Applicable Standards for Gloves

	Standard	**Title of Standard**
1	JIS T 8113 JIS T 8114	Protective Leather Gloves for Welders Vibration isolation gloves
2	ASTM D120 ANSI S2.73	Standard Specification for Rubber Insulating Gloves Mechanical vibration and shock – Hand-arm vibration
3	BS EN 60903 BS EN 12477	Live working. Gloves of insulating material Protective gloves for welders

(11) Body Protection

If the HSO considers necessary, Contractor's Personnel shall be supplied with and shall wear suitable body protection appropriate for the working environment.

Risks such as from chemical or metal splash, spray from pressure leaks or spray guns, contaminated dust, impact or penetration, entanglement of own clothing, hot and extremely cold work; and the like shall be considered and avoided through the provision

where necessary of special protective clothing. This may include for example flame-retardant, anti-static, chain mail, chemically impermeable, and high-visibility clothing and the like.

Body Protection shall be selected and provided for the risks to be identified.

Body Protection shall be kept reasonably clean and shall be replaced when worn out or damaged.

2.9.2 First Aid

(1) General

The Contractor shall ensure that trained personal and adequate first aid equipment and supplies shall be readily available at the Site. First aid kits shall be stored at selected locations on the Site where they are most likely to be needed; they must be accessible with the minimum of delay.

(2) Training

A representative number of Contractor's Personnel selected by the HSO shall be trained in first aid (including CPR) to a minimum standard of that recommended by the International Federation of Red Cross and Red Crescent Societies standard course or equivalent.

(3) First Aid Kits

(a) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for first aid complying with OSHA 1910 Subpart K [Medical and First Aid];

(b) First Aid kits shall comply with ANSI Z308.1 and unless otherwise specified in the Particular Safety Specification, Class A first aid kits shall be provided at the working area(s) on Site and one (1) Class B safety kit shall be provide at the sick bay;

(c) All persons working at the site need to be aware of their purpose and location. Adequate signage shall be provided at the Site to show the location of the first aid kit(s);

(d) Each first aid kit shall contain the specified items and quantities listed in ANSI Z308 as follows:

(i) Adhesive Bandage;

(ii) Adhesive Tape;

(iii) Antibiotic Application;

(iv) Antiseptic;

(v) Breathing Barrier;

(vi) Burn Dressing (gel soaked);

(vii) Burn Treatment;

(viii) Cold Pack;

(ix) Eye Covering, with means of attachment;

(x) Eye/Skin Wash;

(xi) First Aid Guide;

(xii) Hand Sanitiser;

(xiii) Medical Exam Gloves;

(xiv) Roller Bandage;

(xv) Scissors;

(xvi) Splint;

(xvii) Sterile pad;

(xviii) Tourniquet;

(xix) Trauma pad; and

(xx) Triangular Bandage.

(e) Each first aid kit shall contain any additional items and quantities that may be necessary according to the requirements and location of the Works;

(f) The Contractor shall ensure that the following additional items are provided with each first aid kit:

(i) A list of emergency phone numbers;

(ii) Flashlight and extra batteries; and

(iii) Bottled drinking water.

(g) To prevent disease transmission when giving first aid, first aid kits shall contain PPE such as disposable gloves, CPR breathing barriers, eye protection and like supplies;

(h) First aid kits shall be inspected at least once a month;

The HSO shall also conduct regular checks to ascertain any requirements for the following:

(i) Inventory and reorder supplies;

(ii) Expedite any outstanding manufacturer's response on repair or maintenance issues; and

(iii) Schedule of training and retraining.

(4) Automated External Defibrillator – AED.

(a) Unless otherwise specified in the Particular Safety Specification, and amongst any other first aid equipment to be provided by the Contractor, the Contractor shall provide at least one (1) AED at the Site;

(b) The AED shall be stored at a selected location on the Site where it is most likely to be needed and it must be accessible with the minimum of delay;

(c) All personnel at the site shall be kept informed of the purpose and location and the Contractor shall train a sufficient number of personnel in its use;

(d) Adequate signage shall be provided at the Site to show the location of the AED together with instructions for its use;

(e) The AED shall be regularly inspected in accordance with the manufacturer's instructions and as follows:

(i) Visually inspect looking for dirt, damage, or contamination;

(ii) Inspect electrodes ensuring that they are unexpired and in their original, sealed packages, two sets shall be provided;

(iii) Test primary battery;

(iv) Make sure a backup battery is stored with the AED and test backup battery; and

(v) Keep the AED charged and check it is maintaining a charge.

The HSO shall also conduct regular checks to ascertain any requirements for the following:

(i) Inventory and reorder supplies;

(ii) Follow up with the manufacturer on maintenance issues; and

(iii) Schedule training and retraining.

(f) The AED shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.7: Applicable Standards for AED

	Standard	Title of Standard
1	BS EN 60601-2-4:2011+A1:2019	Medical electrical equipment, Part 2-4: Particular requirements for the safety of cardiac defibrillators

CHAPTER 3: EXISTING UNDERGROUND, CONCEALED AND OVERHEAD SERVICES

3.1 UNDERGROUND AND CONCEALED SERVICES

3.1.1 General

(1) This Section applies where there are existing underground or concealed pipes, cables, wires, ducts and the like within the Site (hereinafter collectively referred to as "Underground or Concealed Services"), which may require locating, preserving, avoiding and protecting, diverting, removing, relocating or replacing by the Contractor. The Employer shall provide, at the request of the Contractor, such reasonable assistance as to allow the Contractor to carry out such work.

(2) If Underground or Concealed Services are the property of a relevant authority and unless otherwise specified in the Particular Safety Specification, the Contractor shall, in accordance with the agreement between the Employer and the owner of Underground or Concealed Services regarding the actual scope of work to be carried out, comply with the official regulations and procedures of the authority.

(3) In the case of Underground or Concealed Services which are the property of a third party, the Contractor shall take the procedure of obtaining permission for the work mentioned in (4) below.

(4) In accordance with the agreement between the Employer and the owner of Underground or Concealed Services regarding the actual scope of work to be carried out, permission for its execution and details of the procedures and requirements (including responsibility for insurance and safety procedures), the Contractor (with reasonable assistance of the Employer) may consult with the owner of Underground or Concealed Services to obtain permission to execute the work following the preparations described in JSSS 3.1.2 [*Preparation and Work Planning*] as well as the requirements of the Contract and the instruction of the Engineer.

(5) In the case of Underground or Concealed Services which are the property of the Employer, the permission mentioned in (4) above shall be deemed to have been provided by the Employer subject to the preparations described in JSSS 3.1.2 [*Preparation and Work Planning*].

3.1.2 Preparation and Work Planning

(1) Unless otherwise specified in the Particular Safety Specification, the Contractor shall make the following preparations prior to commencing any work for locating, protecting, diverting, removing, replacing or the like of any Underground or Concealed Services:

(a) Prepare a Method Statement describing the measures for carrying out the required work and ensuring the safety of all persons engaged thereon;

(b) Prepare an emergency call list and communication procedure;

(c) Obtain particular information from the Employer or relevant authority on the procedures for emergency disconnection/de-energisation of the Underground or Concealed Services in case of an accident;

(d) Provide and use cable avoidance tools or cable locators, trace the position and routes on ground surfaces, walls and floors of all Underground or Concealed Services, mark routes with paint and/or wooden pegs or barriers and clear signage and ensure that no unauthorised work take place within the area;

(e) Conduct careful exploratory hand excavation to locate the exact position, depth and route of the Underground or Concealed Services and proceed to expose and protect same or prepare for the required work; and

(f) The Method Statement shall be revised based on the information obtained from the above locating and exploratory work.

(2) In case Underground or Concealed Services of which existence are predicted at the Site, but not shown in the Contract, the Contractor shall inform the Engineer of the existence for the Engineer's instruction to the Contractor.

(3) Machine excavation shall not be allowed when there is any risk that Underground or Concealed Services may exist in the location or vicinity of the excavation.

(4) The Contractor shall take all measures necessary to ensure the protection and safety of road traffic, pedestrians, Contractor's Personnel and any other persons affected by or potentially affected by the Works as required by the Contract and also by JSSS including JSSS 2.2 [*Risk Control Around the Site*].

3.1.3 Requirements and Precautions

Unless otherwise specified in the Particular Safety Specification, the Contractor shall:

(1) Protect and secure all Underground or Concealed Services throughout the execution of the Works and avoid all damage to such services and adjacent areas, particularly when backfilling, compacting and reinstating surfaces.

(2) Take care not to damage the Underground or Concealed Services when using power tools for example asphalt cutting machine to break through paved surfaces above Underground or Concealed Services.

(3) Take care to safely expose, support and protect any drains, other services (new or existing) which follow or cross the route of Underground or Concealed Services.

(4) Reinstate surface paving with material and methods specified, without leaving any difference in level with surrounding pavement and replace all surface markings and signage.

(5) Adequately test all Underground or Concealed Services after completing any diversion, replacement or alteration work, to ensure the safety and integrity and to avoid any future risk of injury, leakage or pollution.

(6) Implement strict safety and fire prevention measures throughout the work including prohibiting the use of equipment that can create any damage or fire hazard (such as welding, cutting and electrical equipment) in the vicinity of any Underground or Concealed Services conveying flammable, combustible or explosive liquids or gases.

(7) Be aware of and avoid electric shock when excavating for or near any cables, wires or cable ducts, ensure the safety of all Contractor's Personnel and ensure the provision and use of PPE.

(8) Be aware of and avoid subsidence or collapse of excavations due to Contractor's Equipment, vehicles, other equipment or other activities being too close to any excavation.

(9) Provide adequate temporary barriers, signage, markings and lighting to all areas where work on or adjacent to Underground or Concealed Services is taking place.

(10) Assign a full time Spotter in accordance with the requirements of JSSS 2.4 [*Spotters*] when work in progress poses any risk to the Underground or Concealed Services, Contractor's Personnel or the Works.

(11) Provide electrical cable marker tiles over all buried wires, cables and cable ducts to warn and protect against the risk of future mechanical damage to same.

(12) Provide permanent markers or signage at the surface to warn of the presence, route and any danger of any Underground or Concealed Services.

(13) Prepare as-built drawings of Underground or Concealed Services after completion of the associated work showing accurate positions, depth, sizes, routes and details and submit to the Engineer.

3.1.4 Information to Contractor's Personnel

Prior to the start of work to or in the vicinity of Underground or Concealed Services, the Contractor shall instruct relevant Contractor's Personnel of the following:

(1) Location of live cables and equipment.

(2) Risk of electric shock from live cables or equipment.

(3) Separation distances from live cables and equipment.

(4) Work procedure.

(5) Preventive measures against electric shock.

(6) PPE to be used.

(7) Electric shock treatment in accordance with JSSS 3.1.5 [*Electric Shock Treatment*].

(8) Response in the event of an accident in accordance with JSSS 1.24 [*Accident Response Plan*] and JSSS 1.25 [*Measures at the Time Accidents Occur*].

(9) Appropriate procedures in the case of accidents arising from contact with or damage to any other services.

3.1.5 Electrical Shock Treatment

The following measures shall be taken in the event of an electric shock accident.

(1) Prohibit workers from touching the chassis or body of any Contractor's Equipment or materials that have become electrified by any live circuit and keep all Contractor's Personnel well away from such equipment, materials and the working area.

(2) When the unit of Contractor's Equipment which is in contact with or in close proximity to a live circuit does not get an electrical shock, the operator shall immediately move the equipment to an adjacent safe location.

(3) When it is not possible to move the Contractor's Equipment away, the operator shall remain in the cabin until the affected live circuits are de-energised.

(4) Prevent secondary electric shock accident by permitting only those who have received training in electrical rescue to rescue the casualties of an electric shock accident.

(5) Immediately perform primary lifesaving measures such as CPR, if necessary use an Automated External Defibrillator (AED) and call for emergency medical support.

(6) Report to the Engineer in accordance with JSSS 1.25 [*Measures at the Time Accidents Occur*] and where applicable to the representative of the relevant authority.

3.2 OVERHEAD SERVICES

3.2.1 General

(1) This Section applies where there are exposed or overhead power or communication cables, wires, ducts, pipes and the like within the Site (hereinafter collectively referred to as "Overhead Services"), and which may require preserving, protecting, diverting, removing, relocating or replacing by the Contractor. The Employer shall provide, at the request of the Contractor, such reasonable assistance as to allow the Contractor to carry out such work.

(2) If Overhead Services are the property of a relevant authority and unless otherwise specified in the Particular Safety Specification, the Contractor shall, in accordance with the agreement between the Employer and the owner of Overhead Services regarding the actual scope of work to be carried out, comply with the official regulations and procedures of the relevant authority.

(3) In the case of the Overhead Services which are the property of a third party, the Contractor shall take the procedure for the works mentioned in (4) below.

(4) In accordance with the agreement between the Employer and the owner of Overhead Services regarding the actual scope of work to be carried out, permission for its execution and details of the procedures and requirements (including responsibility for insurance and safety procedures), the Contractor (with reasonable assistance of the Employer and Engineer) may consult with the owner of Overhead Services to obtain a permission of the owner of Overhead Services to execute the works following the preparations described in JSSS 3.2.2 [*Preparation and Work Planning*] as well as the requirements of the Contract and the instructions of the Engineer.

(5) In the case of Overhead Services which are the property of the Employer, the permission mentioned in (4) above shall be deemed to have been provided by the Employer subject to the preparations described in JSSS 3.2.2 [*Preparation and Work Planning*].

3.2.2 Preparation and Work Planning

(1) Unless otherwise specified in the Particular Safety Specification, the Contractor shall make the following preparations prior to commencing any work for protecting, diverting, removing, replacing or the like of any Overhead Services:

(a) Prepare a detailed Method Statement describing the measures for carrying out the required work and ensuring the safety of all persons engaged thereon;

(b) Prepare an emergency call list and communication procedure; and

(c) Obtain particular information from the Employer or relevant authority on the procedures for emergency de-energisation of the Overhead Services in case of an accident.

3.2.3 Requirements and Precautions

Unless otherwise specified in the Particular Safety Specification, the Contractor shall:

(1) Protect and secure all Overhead Services throughout the execution of the Works.

(2) Adequately test all Overhead Services after completing any diversion, replacement or alteration work, to ensure the safety and integrity and to avoid any future risk of injury, leakage or pollution.

(3) Be aware of and avoid electric shock when working near any cables or wires, ensure the safety of all Contractor's Personnel and ensure the provision and use of PPE.

(4) Be aware of and avoid subsidence or collapse of support structures of Overhead Services due to excavations being too close.

(5) Provide adequate temporary barriers, signage, markings and lighting to all areas where work on or adjacent to Overhead Services is taking place.

(6) Provide insulating protective pipe or casings to the Overhead Services.

(7) Create safe zones free from danger arising from the use Contractor's Equipment by demarcating the route and turning ranges and providing adequate signage and barriers.

(8) Prevent Contractor's Equipment, wire ropes or chains from entering the safe zones and limit the moving range of crane jibs and other high equipment.

(9) Assign a full time Spotter in accordance with the requirements of JSSS 2.4 [*Spotters*] when work in progress poses any risk of close proximity or contact with Overhead Services, Contractor's Personnel or the Works.

(10) Maintain a safe separation distance between any charged electrical circuit and Contractor's Personnel, Contractor's Equipment, Scaffolding and any other Temporary Works, wire rope, tools and materials. The separation distance shall be the maximum relevant value shown Table 3.2.1 [*Safe Separation Distances*] any values that may be prescribed by the Laws of the Country or any values that may be prescribed by the regulations of the relevant authority:

Table 3.2.1: Safe Separation Distances

	Circuit Voltage	Separation Distance
1	Extra-high Voltage (7000V and above)	2m (20cm to be added for every 10,000V increase and fraction from 60,000V)
2	High Voltage (600V up to 7000V)	1.2m
3	Low Voltage (Less than 600V)	1m

3.2.4 Information to Contractor's Personnel

Prior to the start of work to or in the vicinity of Overhead Services, the Contractor shall instruct relevant Contractor's Personnel of the same items as listed in JSSS 3.1.4 [*Information to Contractor's Personnel*]

3.2.5 Electrical Shock Treatment

The Contractor shall take the measures prescribed in JSSS 3.1.5 [*Electrical Shock Treatment*].

CHAPTER 4: CONTRACTOR'S EQUIPMENT

4.1 GENERAL REQUIREMENTS

4.1.1 Scope

(1) This Chapter specifies the safety requirements for Contractor's Equipment which shall include mobile equipment, static equipment, small equipment, tools and electric power equipment as further described in the following Clauses.

(2) The Contractor shall ensure the safety of all Contractor's Personnel, Employer's Personnel and any other persons that are on the Site, adjacent to the Site and other places where they may be affected by Contractor's Equipment in operation, standby or storage or when such equipment is being maintained or transported.

(3) For additional requirements for hoisting, rigging and cranes, refer to JSSS 5 [*Hoisting and Rigging*].

(4) Any reference to "operator" in this Chapter and elsewhere in JSSS shall be deemed to include "driver" also.

(5) Mobile equipment including wheeled or tracked, self-propelled construction machinery such as:

(a) Surface excavation and spoil movement equipment for bulk excavation, grading and levelling, such as bulldozers, graders and tractor excavators;

(b) Excavators such as backhoes, face shovels, power shovels;

(c) Loaders such as payloaders and face shovels;

(d) Dump trucks for removal or importation of spoil;

(e) Specialist foundation equipment such as pile driving and boring equipment;

(f) Compaction and surface treatment equipment such as smooth or sheepsfoot rollers, pneumatic and vibration rollers, asphalt finishers;

(g) Mobile cranes;

(h) Piling equipment;

(i) Concreting equipment such as ready-mixed concrete trucks and pump trucks;

(j) Demolition equipment such as breakers, concrete crushers and demolition grippers;

(k) Transportation Equipment, such as cars and buses for Contractor's Personnel and trucks and trailers for transporting Goods to, around and from the Site; and

(l) Workboat for Diving Works.

(6) Static equipment includes powered stationary equipment such as:

(a) Stone crushing plants and screening equipment;

(b) Concrete and asphalt concrete batching plants;

(c) Tower cranes, derrick cranes;

(d) Elevators;

(e) Material conveyors;

(f) Air compressors;

(g) Engine Generators, submersible pumps and engine pumps; and

(h) Reinforcement, cutting and bending machines.

(7) Small equipment and tools such as:

(a) Hand steered vibrating rollers;

(b) Plate compactors and vibratory rammers;

(c) Portable conveyors;

(d) Pipe bending machines;

(e) Drills, hammers, breakers, compactors and compressors;

(f) Wood processing equipment;

(g) Independent concrete mixers;

(h) Air extract or blowing equipment for improving the working area environment;

(i) Jack hammers, drills;

(j) Chain saws;

(k) Hand operated equipment such as jacks, winches, lever hoists; and

(l) Hand tools such as wrenches, chisels, hand saw, picks, hammers.

4.1.2 Compliance Standards

(1) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], the Contractor shall comply with the requirements of this Chapter, read jointly with and including the Provision and Use of Work Equipment Regulations 1998 (PUWER), HSE Guidance in UK.

(2) In accordance with these regulations, together with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the Contractor shall ensure that all Contractor's Equipment provided for use upon the Works is:

(a) Suitable and fit for the purpose for which it is intended;

(b) Safe for use, maintained in a safe condition and inspected to ensure it is correctly installed and used and does not subsequently deteriorate;

(c) Used only by people who have received adequate information, instruction and training;

(d) Accompanied by suitable health and safety measures, such as protective devices and controls. These shall include emergency stop devices, adequate means of isolation from sources of energy, clearly visible markings and warning devices; and

(e) Used for the designed and intended purpose.

4.1.3 Manufacturer's Documentation

The Contractor shall obtain a copy of the following official Manufacturer's documentation for all units of Contractor's Equipment:

(1) Safety instructions and recommendations.

(2) Operation, maintenance and repair manual.

The Contractor shall inform all relevant Contractor's Personnel of the content of the same, provide further safety training as necessary and ensure full compliance by all relevant Contractor's Personnel with such instructions and recommendations to assist in enforcing the safe use of Contractor's Equipment.

4.1.4 Instruction for Contractor's Personnel

Further to the requirements of JSSS 1.7 [*Contractor's Safety Plans*], JSSS 1.9 [*Contractor's*

Method Statements] and JSSS 1.15 [*Contractor's Safety Management Activities*], the Contractor shall include details of the following in the Method Statement and Safety Plan for works involving the use of Contractor's Equipment and shall fully inform all relevant Contractor's Personnel associated therewith of all requirements before the commencement of any such operations, such as:

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(1) Scope of work, locations and areas, work methods, dimensions, levels and quantities to be achieved.

(2) Types, capacities and numbers of units.

(3) Workplaces, area limits and operational routes, restricted areas, locations of caution signs and fences.

(4) Preservation of safe access, walkways and footpaths around the working areas and transportation areas.

(5) Identities and roles of and location(s) for Spotters and the communication and signalling requirements, including equipment to be used.

(6) Working conditions and required mitigation measures for workers and any other persons against vibration, noise, dust and the like.

(7) Safety measures in the working area, any nearby areas for storage of Dangerous Goods or Hazardous Substances, Hazardous Areas, Operational Areas or areas where Dangerous Work is taking place.

(8) Potential danger to any persons who may be affected by the use of Contractor's Equipment and the required measures to avoid any accident or injury.

(9) Any potential hazards in the use of Contractor's Equipment including those which may create a risk of falling or overturning.

(10) Restrictions to the movement and operation of Contractor's Equipment such as existing structures, foundations, surfaces, underground or overhead services and Dangerous Goods storage.

(11) Measures to be taken in case of breakdown, defect or fault in Contractor's Equipment including location of areas for inspection and maintenance.

(12) Name of the authorised operator for each unit of Contractor's Equipment when authorised operator is necessary to be assigned.

(13) Name and contact of the HSO to inform when there are any requirements for inspection, maintenance and repair of Contractor's Equipment.

4.1.5 Safety Training

(1) The Contractor shall provide the relevant Contractor's Personnel with health and safety training in accordance with JSSS 1.19 [*Safety Training Generally*] taking account of the characteristics of the particular types of Contractor's Equipment and including:

(a) Functions, performance, operation methods, inspection items, inspection method of safety and emergency alarm devices;

(b) Operation procedure, signal and communication method at starting time of the operation, and daily inspection;

(c) Lockout and tagout procedures for shutting down operation, turning off the power, locking the starter and necessary measures for the time of cleaning and inspection of the Contractor's Equipment;

(d) Stop of the operation of the Contractor's Equipment when an abnormality occurs and report to the person in charge;

(e) Prohibition of removal or isolation of safety devices; and

(f) Risks during operation of the Contractor's Equipment.

(2) Particular safety training for transportation equipment operators shall be for the purpose of preventing of traffic accidents on and off the Site and shall include:

(a) Driving rules in general;

(b) Compliance with speed limits, signs, alcohol use, drugs and all other requirements the Laws of the Country;

(c) Driving methods to avoid contact and collision with other persons, cycles, motorcycles and other vehicles;

(d) Driving methods to properly overtake other vehicles and to be undertaken by others;

(e) Driving methods when encountering holes, bumps or obstacles on the road;

(f) Required inspection and maintenance before starting operation; and

(g) Proper use of vehicles including behaviour and control of passengers, prevention of overcrowding, overloading and unauthorised passengers.

4.1.6 Requirements for Operators

Further to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*], the Contractor shall ensure that operators are appropriately qualified, skilled and experienced in operation of the Contractor's Equipment to which they are assigned and duly certified as such by the HSO.

(1) Operators shall safely and competently operate the Contractor's Equipment.

(2) Operators shall be fully aware of the following:

(a) Work procedures, hazards and operation methods;

(b) The need to stop the operation when any defect or abnormality is detected;

(c) The identity of and location(s) for Spotters and the communication and signalling requirements including equipment to be used; and

(d) The procedures in case of emergency.

(3) Operators shall:

(a) Keep all safety devices including emergency-alarm and stop-devices activated;

(b) Keep their assigned unit clean and carry out regular inspections prescribed by the Contractor before start of operation;

(c) Inform the Contractor's maintenance personnel of any apparent defect or maintenance requirements; and

(d) Not use such Contractor's Equipment until any required repair or maintenance is performed.

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4.1.7 Signalling

(1) Signalling between operators and any associated workers shall only be carried out by designated personnel.

(2) Spotters shall be located in a safe place and where they can clearly see and be seen by the operator.

(3) When it is not possible for Spotters to give direct visible and audible signals to the operator, other systems including hand-held radios or videophone must be provided and

used.

4.2 INSPECTION, MAINTENANCE AND REPAIR

4.2.1 Requirements Generally

(1) Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the HSO shall ensure that all Contractor's Equipment is inspected, fully maintained and operational when it is mobilised to the Site. Thereafter all Contractor's Equipment shall be inspected, maintained and repaired before the commencement of the first and of all subsequent days of operation.

(2) Inspections shall include all items necessary to ensure the safe performance of the Contractor's Equipment including the following examples and any further requirements due to the characteristics, capability and condition of the Contractor's Equipment and in compliance with the manufacturer's official operation, maintenance and repair manual.

(3) When mobilising Contractor's Equipment to the Site and before commencement of operation, the Contractor shall:

(a) Inspect all units of Contractor's Equipment to ensure that:

(i) all components are installed and functioning; and

(ii) adequate covers and safety guards (to prevent contact with moving parts) are provided and securely fixed.

(b) Ensure as a minimum that the daily and periodical check items have already been inspected and recorded;

(c) Ensure that all inspection and maintenance records are available for inspection by the Engineer if and when required in compliance with JSSS; and

(d) If any inspection and maintenance records are incomplete or not available, the Contractor shall carry out inspections and maintenance to ensure that a full and acceptable record is available for all units of Contractor's Equipment.

In relation with the above, it should be noted that Contractor's Equipment shall be in a working and safe condition and fully compliant with JSSS when it is mobilised to the Site. The Engineer may refuse to accept delivery to the Site any Contractor's Equipment which does not meet the requirements stipulated in JSSS.

(4) The Contractor shall undertake the following daily inspection items, (or at intervals required by the manufacturer's official operation, maintenance and repair manual), carry out any necessary maintenance and repair, and when necessary obtain re-certification of the HSO before any further operation of the Contractor's Equipment is permitted:

(a) Operating condition of engine, gearbox(s), drive shafts, pulleys and main components, emergency stop and safety devices, any defects or abnormalities in covers, doors and enclosures;

(b) Abnormal sounds, vibrations or smell;

(c) Leaks, levels and condition of lubricants, coolant, hydraulic fluid levels, and the like;

(d) Lights and indicators;

(e) Brakes, clutches, steering and operating devices and working devices;

(f) Cables, slings, ropes and chains;

(g) Protective covers are adequately provided over all rotating or moving parts;

(h) Attachments and tools such as buckets, grabs and the like;

(i) Cleanliness of each unit or item of Contractor's Equipment;

(j) Cleanliness of each working area and removal of obstructions;

(k) Availability of emergency kits such as warning flares and triangles, fire extinguisher, first aid kit and the like, as required by the Laws of the Country with the testing and expiration date clearly indicated; and

(l) Any additional inspection items stipulated in the manufacturer's official operation, maintenance and repair manual.

(5) The Contractor shall undertake the following periodic inspection items, (at intervals required by the manufacturer's official operation, maintenance and repair manual), carry out any necessary maintenance and repair, and when necessary obtain re-certification of the HSO before any further operation of the Contractor's Equipment is permitted:

(a) Engine compression pressure, valve clearance and other relevant parts of prime energy unit;

(b) Gearbox, clutch, transmission, propeller shaft, differential and other parts of power transmission devices;

(c) Drive wheels, idling wheels, vertical trunk rollers, belts, tires, wheel bearings and other parts of traveling devices;

(d) Springs, shock absorbers and other parts of suspension devices;

(e) Left and right rotation angle of steering wheel, knuckle, rod, arm and other parts of control devices;

(f) Brake capacity, brake drum, brake shoe and other parts of braking systems;

(g) Blades, booms, link mechanisms, buckets, wire ropes and other parts of work equipment;

(h) Hydraulic pump, hydraulic motor, cylinder, safety valve and other parts of hydraulic equipment;

(i) Voltage, amperage and relevant performance and components of electrical systems;

(j) Body, operating devices, head guards, back stoppers, access doors, protective covers, ladders and steps, locking devices, warning alarm devices, direction indicators, tyre air pressures and lightning devices; and

(k) Any additional inspection items stipulated in the manufacturer's official operation, maintenance and repair manual.

(6) Operation of any unit of Contractor's Equipment shall not be allowed to commence until the HSO has certified that it is safe to do so.

(7) The Contractor shall prepare standard checklists for all inspections and the HSO shall ensure that these are complied with, completed and signed and kept as a record in accordance with JSSS 1.32 [*Health and Safety Records*].

4.2.2 Defects and Repair During Operation

(1) If an operator notices any defect or abnormality in the Contractor's Equipment during operation (such as abnormal noise, temperature, smell, etc.) the operator shall stop the operation immediately.

(2) Necessary repair shall be provided by qualified mechanics, electricians or engineers.

(3) The HSO shall ensure that no further operation shall resume unless the above has been complied with and the Contractor's Equipment has been re-inspected by him and certified in accordance with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety*

Equipment and PPE].

4.3 SAFETY REQUIREMENTS

4.3.1 General Safety Measures

In addition to other safety and health requirements of JSSS, the Contractor shall:

(1) Ensure that there is sufficient lighting to perform all work safely and provide artificial lighting where necessary.

(2) Ensure that Contractor's Equipment is equipped with suitable protective safety devices such as covers, screens, guards, contact prevention devices, auto-stop devices, enclosures, barriers and the like as necessary to prevent injury to personnel from equipment or parts of equipment, where:

(a) There may be any risk of persons being hit by, caught or injured or entangled in any ropes, cables, sheaves, moving or rotating parts; and

(b) There may be any risk of persons being hit by flying debris, offcuts, or the like produced by the equipment.

(3) Ensure that Contractor's Equipment is equipped with suitable ladders and steps for access to the operating cab and also to all other levels and components to permit inspection, assembly, maintenance and repair of the equipment. When any Contractor's Personnel need to work at a height of 2 m or more, the Contractor shall take suitable measures in accordance with JSSS 2.5 [*Fall Prevention*], including the provision and use by such Contractor's Personnel of guide ropes and PFAS.

(4) Prohibit personnel other than operators, workers and other authorised personnel from entering the place where Contractor's Equipment is in use for the Works.

(5) Ensure that each unit of Contractor's Equipment is provided with appropriate numbers and types of fire extinguishing equipment (where such equipment is necessary) and ensure that all operators and other Contractor's Personnel are trained in the use of such equipment and in fire safety procedures.

(6) Ensure that each working area where Contractor's Equipment is in use, is provided with appropriate numbers and types of first aid equipment and such other facilities that are necessary to ensure safety and treat accidents and ensure that all operators and other Contractor's Personnel are trained in the use of such equipment and first aid procedures.

(7) Post a label clearly showing the name of the operator on each unit of Contractor's Equipment together with the name and contact number of the HSO or a person in charge who shall be contacted in the event of breakdown or fault.

(8) Ensure that only the authorised operating, inspection and maintenance personnel access the mechanical, electrical and other components and systems of the Contractor's Equipment and prohibit all other persons from such access.

(9) Ensure that any inspection and maintenance covers, safety guards to prevent contact with moving parts and the like are not disabled, tampered with or removed except for repair, maintenance or any other justifiable reason.

(10) Ensure that installation, assembly, testing commissioning, operation and dismantling of all Contractor's Equipment is carried out under the direction of an Operation Leader, appropriately qualified, skilled and experienced in such activities for the particular type and capacity of equipment and in accordance with the manufacturer's operation, maintenance and repair manual.

4.3.2 Safety Measures During Cleaning, Inspection and Maintenance

The Contractor shall take the following measures for safety of Contractor's Personnel during cleaning, inspection and maintenance. Until such measures are taken, the Contractor shall

prohibit any cleaning, inspection or maintenance personnel or other workers from entering the areas:

(1) Put Contractor's Equipment, wherever possible on a level surface. Where such is not possible, ensure that wheels are securely chocked to prevent any movement of equipment.

(2) Provide safety blocks or supports under cargo bed of vehicles to prevent them descending unexpectedly.

(3) Lower attachments (buckets and blades etc.) to the ground during any inspection and maintenance. Where unavoidable ensure that attachments are securely supported to prevent any fall or downward movement.

(4) Stop and isolate the functions completely, establish and implement lockout and tagout procedures to prevent accidents during inspection and maintenance. The lockout and tagout system shall fully isolate the starting system.

(5) Post warning signs to prohibit start-up or use of any Contractor's Equipment.

(6) Assign a Spotter.

(7) Ensure that only authorised personnel have access to the cleaning, inspection and maintenance area.

4.3.3 Safety Measures During Operation

(1) Unless otherwise specifically permitted by the HSO, all work involving the use of Contractor's Equipment shall be designated as Dangerous Work and the Contractor shall enclose the working area with temporary fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry*].

(2) The Contractor shall also ensure that:

(a) All operators are able to clearly see and communicate effectively with Spotters and other relevant persons;

(b) No Contractor's Equipment is operating beyond the capacity or operational limits officially prescribed by the equipment manufacturer;

(c) The surfaces upon which the Contractor's Equipment is working, and any adjacent surfaces and areas over which access is required, are sound, safe and suitable to support the equipment and the Contractor shall provide any temporary foundations, hardstanding or other surfaces, sleepers or steel plates as are necessary to ensure safety and stability of the equipment at all times;

(d) Spotters are always be provided to enable precise movement and positioning of Contractor's Equipment, particularly when reversing, loading and unloading, in dangerous areas or when the operator's view is not clear and at intersections with public roads;

(e) Where there is any risk of turnover, slippage, collapse or fall, Contractor's Equipment is equipped with seatbelts or safety harnesses and that such seatbelts and harnesses are used;

(f) Where there is any risk of turnover, slippage, collapse or fall, Contractor's Equipment is equipped with a "Roll-Over Protective Structure" (ROPS);

(g) Where there is any risk of injury to operators due to Falling Objects Contractor's Equipment is equipped with a "Falling Object Protective Structure" (FOPS);

(h) Operators are aware that they shall pay careful and constant attention to the position of any workers near to the operating area and particularly when mobile equipment is reversing;

(i) Operators of excavating equipment are aware that excavator buckets shall never pass over the operator's seat of any other Contractor's Equipment;

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(j) Workers shall not enter under a bucket which is loading material and shall keep away from dump trucks when loading or unloading materials; and

(k) No person shall ride on trucks, trailers or cargo bed other than cabin of vehicles unless permitted by the Laws of the Country.

4.3.4 Safety Measures When Mobile Equipment Is Not In Use

(1) When mobile equipment is not in use, the Contractor shall ensure that operators:

(a) Park on surfaces which are level, sound, safe and suitable to support the equipment;

(b) Securely chock all wheels to prevent any movement;

(c) Lower attachments (buckets and blades etc.) to the ground;

(d) Stop and isolate the functions completely, fully engage brakes and lock the brake pedal; and

(e) Lock the equipment and store the starter key in the designated place.

(2) The Contractor shall prohibit all persons other than authorised personnel from entering the area where Contractor's Equipment is parked.

4.3.5 Safety Measures During Connecting and Removing of Attachments

The Contractor shall take the following measures when connecting and removing attachments (buckets, blades etc.) to Contractor's Equipment:

(1) Prevent any accident due to movement or fall of attachments by taking safety measures for example, connecting and removing attachments after locating them on stable and sound frames or on the ground.

(2) Prevent accidental movement or operation causing persons to be trapped attachments by taking safety measures for example, parking of the Contractor's Equipment such that it cannot move (as mentioned in JSSS 4.3.4 (1) (a), (b) and (d)) and stop the engine.

4.3.6 Safety Measures During Loading and Transporting of Contractor's Equipment

The Contractor shall:

(1) Select and use trailers with associated ramps, other loading equipment and restraints which are suitable for the particular type, size and weight of the Contractor's Equipment and fit for the purpose for which they are intended.

(2) Select location and areas for loading and unloading which have sufficient space and surfaces which are level, sound, safe and suitable to support all of the equipment.

(3) Securely chock all wheels of trailers to prevent any movement.

(4) Stop and isolate the functions of trailers and load and fully engage brakes.

(5) Ensure trailers are equipped with tie down devices to allow secure fixing of load.

(6) Ensure that the weight and height of the loaded Contractor's Equipment do not exceed actually required or legal limits.

(7) Ensure that all lights, brakes, steering and safety devices are working properly.

(8) Ensure that suitable, clear and legally compliant signage is attached to the trailer visibly indicating the maximum safe loading capacity, height of load, width, speed limits and any other restrictions or required information.

(9) Ensure that trailers are loaded evenly.

(10) Ensure that Contractor's Equipment loaded onto trailers is braked, wedged, securely locked in position and tied to the trailer with adequately sized chains, slings and other fixings and tensioned to prevent any movement during transit.

(11) Place any attachments on trailers and securely tie down.

(12) Inspect the tie-down tensioning, before and at intervals during transportation of Contractor's Equipment to ensure that there is no slackening.

(13) Inspect chains, slings and other fixings for securing transported Contractor's Equipment and if any abnormality is found, replace immediately.

4.3.7 Safety Measures During Loading and Transporting of Goods

The Contractor shall:

(1) When transporting heavy or long Goods on public roads, select roads on which the transportation does not pose danger to other traffic, third parties, structures adjacent to the transportation route, obtain all necessary permission from the relevant authorities including police and road authority before commencement of transportation and comply with all requirements.

(2) When transporting heavy or long material Goods within the Site, select suitable routes where the transportation does not pose danger to existing permanent or temporary buildings or structures or other works and obtain the consent of the HSO before commencement of the transportation and comply with all requirements.

(3) Ensure that Goods are loaded evenly.

(4) Secure all loads with adequate and tensioned slings and cover with protective sheets, to avoid any fall or collapse of the conveyed articles and prevent any risk to workers and third parties.

(5) Inspect slings for securing transported materials and if any abnormality is found, replace immediately.

4.3.8 Temporary Roads in the Site

The Contractor shall:

(1) Take measures to ensure that that Temporary Roads in the Site are of suitable construction, of sufficient width, free from potholes, uneven settlement and collapse.

(2) Provide signs indicating height and weight restrictions, bends, speed limits, intersections, dangerous places and the like (e.g. road shoulders, cliff edges and the like).

(3) Separate roads for vehicles and walkways for workers and provide passing area for vehicles at places where the road is narrow.

(4) In large construction sites, provide exclusive transport roads which are one-way if possible and provide passing areas on narrow roads.

(5) Provide sufficient lighting facilities at necessary places along roads when work operating in night.

4.3.9 Additional Requirements for Static Equipment

(1) The Contractor shall design and construct suitable foundations and support structures for static equipment with paved surfaces, screens, fencing and associated facilities for storage of material and product and for offices, access and the like all of which shall be suitable and fit for the purpose for which they are intended. Unless otherwise stated in the Contract, all such foundations, support structures, paved surfaces, fencing, screens and associated facilities shall be demolished and removed and disposed of safely and in an environmentally acceptable manner by the Contractor on or before completion and taking-over of the Works. All areas shall be backfilled, restored to a safe and suitable

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condition, cleaned and landscaped.

(2) Unless otherwise stated in the Contract, all remaining aggregate, rock, cement, bitumen and the like used by or processed with the static equipment shall be removed and disposed of safely and in an environmentally acceptable manner by the Contractor on completion of use of the static equipment. All areas shall be backfilled, restored to a safe and suitable condition, cleaned and landscaped.

4.3.10 Additional Requirements for Personnel and Goods Elevators and Material Conveyors

(1) General

(a) The requirements for conveyors stipulated in this Clause apply to material conveyors;

(b) The Contractor shall undertake the daily and periodical inspection in addition to the items stipulated in JSSS 4.2 [*Inspection, Maintenance And Repair*], (or at intervals required by the manufacturer's official operation, maintenance and repair manual), carry out any necessary maintenance and repair and when necessary obtain re-certification of the HSO before any further operation of the Contractor's Equipment is permitted; and

(c) The Contractor shall post the maximum load capacity and any restrictions on the use.

(2) Personnel and Goods Elevators

(a) Additional daily inspection items shall include checking for defects or operational faults with the following:

(i) Elevator enclosures, doors, guide-rails and runners;

(ii) Emergency stop and alarm systems;

(iii) Power, lighting and control systems;

(iv) Interphone systems;

(v) Brakes, clutches; and

(vi) Sheaves and pulleys.

(b) Additional periodical inspection items shall include checking for defects or operational faults with the following:

(i) Daily inspection items;

(ii) Wire ropes;

(iii) Winch and its foundation; and

(iv) Supporting structures, guy ropes, fixings and anchors.

(3) Material Conveyors

(a) Additional safety measures:

(i) Conveyor systems shall be equipped with an audible warning signal to be sounded immediately before starting up the conveyor;

(ii) Means for stopping the motor or engine shall be provided at the motor or engine location;

(iii) Emergency stop switches shall be provided and be arranged so that the conveyor cannot be started again until the actuating stop switch has been reset to running or "on" position;

(iv) Where a conveyor passes over working areas, roads and walkways, suitable

guards shall be provided to prevent fall of the materials being conveyed; and

(v) Riding of workers on the moving belts shall be prohibited.

(b) Additional daily inspection items shall include checking for defects or operational faults with the following:

(i) Overrun and reverse run prevention devices;

(ii) Emergency stop switches; and

(iii) Guards.

(c) Additional periodical inspection items, shall include for checking for defects or operational faults with daily inspection items.

4.3.11 Additional Requirements for Small Equipment and Tools

(1) Accessories and attachments shall be the standard types obtained from or recommended by the manufacturer of the equipment to which they are connected.

(2) Any repairs shall be carried out by competent persons approved by the HSO.

(3) All small equipment and tools shall be tested by the HSO as safe for use after any repair or replacement of parts, before such equipment is put back into use.

4.3.12 Additional Requirements for Electric Powered Equipment

(1) Electric powered equipment specified in this Clause shall include portable electric powered mobile equipment or tools and shall form a part of the small equipment and tools listed in JSSS 4.1.1 (7).

(2) The Contractor shall undertake the following additional daily inspection items, (or at intervals required by the manufacturer's official operation, maintenance and repair manual), carry out any necessary maintenance and repair and when necessary obtain re-certification of the HSO before any further operation of the Contractor's Equipment is permitted:

(a) Defects or operational faults with grounding such as disconnection of grounding wire and insecure fixing of grounding electrodes;

(b) Damage to insulation and protective coverings of all wires and cables including flexible cables; and

(c) Damage to plugs, sockets, transformers and all wiring fittings and appliances.

(3) The Contractor shall comply with the following additional safety requirements:

(a) Use waterproof switches and socket outlets with covers, securely fixed and located in accessible and dry places;

(b) Label and paint electrical power and switch boxes with warning signs and coloured hazard markings;

(c) Use rubber cabtyre cables for all electrical power equipment;

(d) Provide grounding to all electrical power supply systems with GFCI or RCD in accordance with JSSS 6.7.3 [*General Safety Requirements*];

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(e) Avoid hanging electric cables and wires directly on nails, reinforcement or Scaffolding and the like to prevent damage to the insulation and protective covering;

(f) Turn off the power before repairing, moving or maintaining electric power equipment;

(g) Replace fuses with correct type and rating, prohibit replacing fuses with a higher

rating or with iron or copper wire;

(h) Ensure that fuses are replaced by an authorised person;

(i) Prevent any use of electric power equipment from use in the rain, or when the user is wet, standing in water or is not wearing rubber soled insulated footwear or when the electric power equipment is wet;

(j) When any operational fault is identified immediately turn off the power, unplug and stop using the equipment and advise (or hand to) the HSO;

(k) Ensure that workers using electric power equipment wear appropriate PPE suitable for the electric power equipment in use such as working clothes, protective helmets, safety shoes, eye and face protection, ear protection; and

(l) When electric shock accident occurs, unplug and stop using the equipment and advise (or hand to) the HSO and take measures in accordance with JSSS 1.25 [*Measures at the Time Accidents Occur*].

4.3.13 Additional Safety Measures during Adverse Weather

Further to the requirements of JSSS 2.7 [*Adverse Weather Requirements*], the Contractor shall ensure that Contractor's Equipment is parked in a stable and secure state by taking all necessary measures including:

(1) Dropping the jib, boom, arm and attachments to ground level and securing where necessary with adequate anchors and chains.

(2) If heavy rain and flooding can be anticipated, moving Contractor's Equipment to higher ground or to places where the risk of instability is limited.

(3) Removing snow or ice.

4.4 ROPES, SLINGS AND CHAINS

4.4.1 Requirements Generally

(1) The Contractor shall ensure that untested, uncertified, broken, damaged, deformed or defective ropes, chains or slings shall not be used.

(2) The safety factor for wire ropes, slings and chains shall be as recommended by the manufacturer of each type.

(3) Requirements for ropes, slings and chains shall be as specified in JSSS 5.4 [*Rigging Equipment*].

4.5 ALTERNATIVE USE OF CONTRACTOR'S EQUIPMENT

4.5.1 Requirements Generally

The Contractor shall not use Contractor's Equipment for any other purpose than the purpose for which it is designed and other than the purpose recommended by the manufacturer.

Use of Contractor's Equipment for any other purpose than the originally intended purpose are allowed only if it is not prohibited by either of the Laws the Country and the manufacturer's official operation, maintenance and repair manual and subject to HSO's approval after reviewing all the safety aspects.

In particular, when equipment for excavation is to be used for lifting, the HSO shall, in addition to other requirements provided in JSSS, confirm:

(1) Rigging Equipment (such as hook) is attached on an appropriate part of the excavation equipment (e.g. arm or bucket).

(2) Arms, bucket, Rigging Equipment have enough strength to lift the load.

(3) The lifting devices such as hook and shackles are firmly attached to arm or bucket of the

equipment.

(4) The lifting capacity for alternative use is confirmed by loading tests at the Site.

(5) Ensure that operators have accurately determined the total weight of the load, taking account of the weight of any attachments, the reach and angle and configuration of the equipment and have informed the HSO of this and obtained his permission before commencing the operation.

4.6 HIRED/LEASED CONTRACTOR'S EQUIPMENT

4.6.1 Requirements Generally

(1) Contractor's Equipment from hire or lease companies shall comply with all of the requirements of JSSS as if it were the Contractor's own property, in particular the Contractor shall ensure compliance with the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

(2) The Contractor shall ensure that the hire/lease companies have performed all necessary inspection, maintenance and repair works before the Contractor's Equipment is mobilised to the Site and that the following is provided with the equipment to the Contractor upon mobilisation and is available for the inspection of the Engineer:

(a) Inspection and maintenance records;

(b) Operation, repair and maintenance manuals; and

(c) Spare and replacement parts, tools, maintenance equipment, lubricants, filters, hydraulic fluids and the like.

(3) The Contractor shall double-check to ensure that the inspection and maintenance has been carried out and if the Contractor has any doubt over the adequacy of such inspection or maintenance or if complete records are not made available, the Contractor shall not allow this Contractor's Equipment to be used upon the Works. The Contractor shall inspect and carry out full maintenance and repair on such equipment in compliance with the requirements of this Chapter before it is certified for use by the HSO and used upon the Works.

(4) Operators from hire/lease companies are by definition Contractor's Personnel and they shall be treated as if they are employed by the Contractor, in terms of compliance with JSSS.

(5) Operators shall be tested and certified by the HSO, shall receive safety training and shall perform all inspection, maintenance and other requirements fully in compliance with JSSS, in the same way as the Contractor's own employees.

4.7 TEMPORARY FUELLING FACILITIES

4.7.1 Requirements Generally

(1) When the Contractor uses temporary fuel storage and dispensing facilities at the Site for the use of Contractor's Equipment, the Contractor shall design and construct them so that they are substantial and secure and capable of storing and dispensing fuel in a safe and environmentally acceptable manner all to the approval of the Engineer.

(2) The facility shall include storage tanks, suitable foundations, support or containment structures, protective bund walls as necessary, paved surfaces, screens, fencing and associated facilities for storage of separate fuels and lubricants and for offices, access and the like all of which shall be suitable and fit for the purpose for which they are intended.

(3) Unless otherwise specified in the Contract, all such tanks, foundations, support and containment structures, paved surfaces, fencing, screens and associated facilities shall be demolished, removed and disposed of in a safe and environmentally acceptable manner

by the Contractor on completion and taking-over of the Works. All areas shall be backfilled, restored to a safe and suitable condition, cleaned and landscaped.

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(4) The Contractor must ensure that the temporary fuel storage and dispensing facility is operated and occupied at all time only by authorised personnel and that all unauthorised personnel are prohibited from entering such areas at all times. The Contractor shall be particularly careful and provide measures to prevent any unauthorised access, tampering, damage and theft at any time.

(5) All storage tanks shall be bunded either as jacketed tanks or by providing bunded enclosures, such that in the event of a catastrophic failure, the tank contents will be safely contained and shall not be allowed to run freely or enter the surface or ground water systems.

(6) The Contractor is reminded of the requirements of JSSS 2.8 [*Fire Prevention*] and will be required to provide a comprehensive and a high standard of fire protection in fuel storage areas.

CHAPTER 5: HOISTING AND RIGGING

5.1 GENERAL REQUIREMENTS

5.1.1 Scope

(1) This Chapter specifies the safety requirements for Hoisting and Rigging Works which shall include:

(a) Hoisting Operations;

(b) Hoisting Equipment; and

(c) Rigging Equipment.

And hereinafter collectively referred to as “Hoisting and Rigging”.

(2) General requirements for Contractor’s Equipment for Hoisting and Rigging (including cranes) are included in JSSS 4 [*Contractor’s Equipment*].

Additional particular requirements are contained in this Chapter.

5.1.2 Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Chapter or relevant to the subject of this Chapter and which are not fully covered by JSSS, the Contractor shall comply with the following standards:

(1) OSHA 1926.251 [Rigging equipment for material handling];

(2) OSHA Subpart R [Steel Erection];

(Note: Whilst this standard is related to Steel Erection, JSSS requires that this standard be applied to Hoisting Operations and associated rigging requirements in construction works generally)

(3) OSHA 1926.1413 [Wire rope – inspection]; and

(4) OSHA 1926.1414 [Wire rope - selection and installation criteria].

5.2 HOISTING OPERATIONS

5.2.1 Instruction for Contractor’s Personnel

Further to the requirements of JSSS 1.7 [*Contractor’s Safety Plans*], JSSS 1.9 [*Contractor’s Method Statements*] and JSSS 1.15 [*Contractor’s Safety Management Activities*], the Contractor shall include details of the following in the Method Statement and Safety Plan for Hoisting Operations and shall fully inform all Contractor’s Personnel associated with such Hoisting Operations of these requirements before the commencement of any such operations, including:

(1) Scope, Area and Risk of the Hoisting Operation

(a) The scope of the required Hoisting Operation, the Rated Capacity, nature of Goods to be hoisted, location, required methods and safety arrangements;

(b) The Hoisting Operation boundary;

(c) Requirements on the ground conditions for installation, appropriate installation method taking account of all Hoisting Operation requirements, site and working conditions, location of obstacles, etc.;

(d) The working environment of the nearby areas to which particular attention should be paid (e.g. storage of Dangerous Goods or Hazardous Substances, Hazardous Areas, Operational Areas, or Overhead Services);

(e) The preservation of safe access for Contractor’s Equipment and persons to, within and around the Hoisting Operations working area; and

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(f) The potential danger of Hoisting Operations to any persons that are on the Site, and who may be affected by such operations.

(2) Hoisting Operation and Rigging Requirements

(a) The type(s) of Hoisting Equipment to be used and the Rated Capacity;

(b) The type(s) of Rigging Equipment to be used and the Rated Capacity;

(c) Hazards associated with the Hoisting Operation;

(d) Role and responsibility of the operator and each Rigger;

(e) Weight of Goods being hoisted;

(f) The shapes and characteristics of Goods being hoisted;

(g) The presence of any obstructions or Overhead Services and consequent restrictions on the movement and operation of Hoisting Equipment;

(h) Connecting and disconnecting techniques;

(i) The communication and signalling requirements (equipment to be used and standard signals); and

(j) The procedures in case of emergency.

(3) Identification of Personnel

(a) The identity of operators, Riggers and any other workers associated with the Hoisting Operation;

(b) The name of the authorised operator for each unit of Hoisting Equipment; and

(c) The identity of and location(s) for Spotters.

5.2.2 Operators and Riggers Generally

(1) The Contractor shall place signs on each unit of Hoisting Equipment showing the name of each authorised operator and clearly prohibiting all unauthorised persons from using, handling, operating or sitting at the controls of that equipment unit.

(2) Further to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*], the Contractor shall ensure that operators and Riggers are appropriately qualified, skilled and experienced in operation of the Hoisting Equipment to which they are assigned and duly certified as such by the HSO.

(3) Operators and Riggers shall be fully aware of the following:

(a) Work procedures, possible risks and operation methods;

(b) The need to stop all work when any defect or abnormality is detected;

(c) Not to remove, interfere with or override any safety devices;

(d) The identity of and location(s) for Spotters and the communication and signalling requirements including equipment to be used and signals; and

(e) The procedures in case of emergency.

(4) In addition, operators shall:

(a) Safely and competently operate the Hoisting Equipment;

(b) Keep all safety devices including emergency alarm and stop devices activated;

(c) Keep their assigned unit clean and carry out regular inspections prescribed by the Contractor before start of operation;

(d) Inform the Contractor's maintenance personnel of any apparent defect or

maintenance requirements; and

(e) Not use such Hoisting Equipment until any required repair or maintenance is performed.

(5) The Contractor shall assign only Riggers for Hoisting Operations and shall prohibit other workers from any involvement.

(6) The names of all assigned Riggers shall be posted prominently in the working area of the Hoisting Operation.

5.2.3 Safety Training

The Contractor shall provide health and safety training in accordance with JSSS 1.19 [*Safety Training Generally*]. taking account of the characteristics of the Hoisting Operations, Hoisting Equipment and Rigging Equipment.

5.2.4 Inspection of Hoisting Equipment and Rigging Equipment

(1) When the Hoisting Equipment is mobilised to the Site, the Contractor shall inspect the equipment complying with JSSS 4.2 [*Inspection, Maintenance and Repair*], to ensure that the equipment is free from defect and suitable for the planned Hoisting Operation.

(2) Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] and JSSS 4.2 [*Inspection, Maintenance and Repair*], the HSO shall ensure that all Hoisting Equipment and all Rigging Equipment is inspected and maintained when it is at the location of operation before the commencement of the first and of all subsequent Hoisting Operations.

Inspections shall include all items necessary to ensure the safe performance of the Hoisting Operations including the following examples and any further requirements due to the characteristics of the Hoisting Operation and the capability and condition of the Hoisting Equipment and Rigging Equipment including condition and performance of:

(a) Anti-two blocking devices (over-winding prevention devices) and over-load prevention devices;

(b) Other safety devices including brakes, clutches and controllers;

(c) Rails for trolley and runway;

(d) Hooks, sheaves, blocks, pulleys and the like;

(e) Cables, ropes and the like; and

(f) Rigging Equipment.

(3) Periodic inspection shall be made complying with JSSS 4.2 [*Inspection, Maintenance and Repair*] and include the following items:

(a) Condition of over-winding prevention devices, anti-two blocking devices (over-winding prevention devices), other safety devices, brakes, and clutches;

(b) Condition of wire ropes and hanging chains;

(c) Condition of the Hoisting Equipment;

(d) Condition of placement of winches; and

(e) Condition of electric wire, switchboard and controller.

(4) No Hoisting Equipment or Rigging Equipment shall be put into operation unless it has been inspected in accordance with the requirements of JSSS 4.2 [*Inspection, Maintenance and Repair*] and it is certified as safe to be used.

(5) The Contractor shall prepare standard checklists for the above regular and periodic inspections. The results of these inspections shall be recorded and kept in accordance

with JSSS 1.32 [*Health and Safety Records*].

5.2.5 General Safety Measures for Hoisting Operations

The Contractor shall:

(1) Select Hoisting Equipment which has a Rated Capacity and function compatible with the work conditions and requirements, including loads, surface conditions, access, working area, radius and angle of boom, etc.

(2) Clearly display the Rated Capacity of the Hoisting Equipment so that all operators and Riggers are fully aware at all times.

(3) Select Rigging Equipment with a Rated Capacity suitable for the Hoisting Operation.

(4) Select Rigging Equipment compatible with the purpose, work conditions and requirements.

(5) Ensure that operators and Riggers confirm that the load on the Rigging Equipment is less than the Rated Capacity.

(6) Activate all safety devices of Hoisting Equipment throughout the entire operation time(s) of any Hoisting Operations.

(7) Prohibition of entry

(a) Designate all Hoisting Operations as "Dangerous Work", enclose the entire working area which is subject to any risk by providing temporary fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry*]; and

(b) The Contractor shall take measures to keep any unauthorised personnel away from any area where there is any risk of injury arising from the Hoisting Operation, due to fall of hoisted Goods, tangling, snagging, rebound of broken ropes or cables, broken sheaves, droppage and the like.

(8) Signalling

(a) Signalling between operators, Riggers and any associated workers regarding the Hoisting and Rigging Operations, shall only be carried out by Riggers, (hereinafter referred to as signallers);

(b) Signallers shall be located in a safe place outside the immediate area where the Rigging and Hoisting Operations are taking place, but in a location where they can clearly see suspended loads and can also see the operator and also be seen by such personnel;

(c) When it is not possible for signallers to give direct visible signals to the operator, hand-held radios or other communication tool as approved by HSO must be provided and used; and

(d) In addition, Spotters shall be placed and used only to keep any unauthorised personnel away from the working area.

(9) During Hoisting Operations:

(a) Check if the hoisting points, hooks and the like are positioned above the centre of gravity of the load to be hoisted;

(b) At commencement of all Hoisting Operations, stop the hoist at 30 cm from hoisting level, to check stability and ensure that all is in order before proceeding;

(c) Ensure that there are no persons and objects within the turning area when the Hoisting Equipment turns;

(d) After hoisting loads up to the safe height, adjust the boom gently;

(e) Always pay attention to any movement of the boom and the condition of suspended loads; and

(f) When unloading or detaching loads, stop once before landing and check the condition of the landing place and the load and then continue to lower gently.

(10) Ensure that operators shall never leave their seat or leave the controls while Hoisting Operations are in progress.

(11) Defects with Hoisting Equipment during operation

(a) Ensure that if operators notice any defect or abnormality in the Hoisting Equipment during Hoisting Operations (such as abnormal noise, temperature, smell, etc.) the operator shall stop the Hoisting Operation immediately;

(b) Identify the cause of the defect or abnormality and make necessary repairs by using authorised and qualified specialist mechanics, electricians or representative technical engineers authorised by the Hoisting Equipment manufacturer; and

(c) Ensure that the repaired Hoisting Equipment shall not be put in operation unless certified by the HSO.

(12) Condition of Ropes, Slings and Chains

Ensure that untested, uncertified, broken, damaged, deformed or defective ropes, chains or slings shall not be used.

(13) Adverse Weather

Take the following measures in addition to JSSS 2.7 [*Adverse Weather Requirements*]:

(a) Hoisting Equipment is left in a safe condition when not in use and particularly if adverse climatic conditions can be anticipated;

(b) All anchors, outriggers and supports are secure and adequate to fix and support the Hoisting Equipment in position during any adverse climatic conditions;

(c) Booms and jibs shall be secured to prevent any instability or collapse; and

(d) Before resuming any Hoisting Operation after any adverse weather, inspect Hoisting Equipment using the daily and periodic checklists specified in JSSS 5.2.4 [*Inspection of Hoisting Equipment and Rigging Equipment*].

(14) Use of Hoisting Equipment for Contractor's Personnel

As a general rule, Hoisting Equipment shall not be used for transporting or hoisting Contractor's Personnel.

In exceptional circumstances and if so approved by the HSO, use of Hoisting Equipment may be allowed when the following all measures are taken:

(a) Dedicated gondola for transporting or hoisting shall be provided;

(b) Prevention measures shall be taken to avoid turning and falling of gondola;

(c) The assumed load (i.e. 1.3 times of total weight of gondola and workers on board plus 4,903 N) shall not exceed the Rated Capacity of the Hoisting Equipment;

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(d) Wires and ropes of Hoisting Equipment shall have a safety factor of at least 10 against the assumed load;

(e) Wire ropes of Hoisting Equipment shall have a safety factor of at least 10 against the assumed load;

(f) Lowering the gondola shall be by powered system which prevents any free drop; and

(g) Use of PFAS of any Contractor's Personnel in the gondola shall be ensured.

5.3 HOISTING EQUIPMENT - CRANES

5.3.1 Planning, Installation and Removal

Unless otherwise approved by the HSO, the Contractor shall employ an appropriately qualified, skilled and experienced crane specialist(s) that shall select the required type and capacity of crane, plan the Hoisting Operation including mobilising, assembly, erection, use, dismantling and removal of cranes. The Contractor's specialist shall:

(1) Investigate the location and position for installation, plan the appropriate installation method taking account of all Hoisting Operation requirements, site and working conditions, location of obstacles, etc.

(2) Investigate the working area and ensure the safety of the crane and any crane rails.

(3) Design and construct crane foundation, assemble and install the crane with proper structural design and in compliance with the manufacturer's written instructions.

(4) Conduct completion inspection, load test and stability test of the crane.

(5) Dismantle and remove and transport cranes in a planned and systematic manner in compliance with the manufacturer's written instructions.

5.3.2 Additional Requirements for Mobile cranes

(1) Position mobile cranes where there are no obstacles within the operation range.

(2) Where obstacles exist, plan the appropriate operation to avoid the obstacles and ensure that operators and signallers comply with this plan.

(3) Ensue that ground has sufficient and even bearing capacity to prevent the crane from subsiding and overturning. Where necessary or where there is any risk of damaging surface paving or underground services, provide temporary steel plates of suitable size, thickness and to support the crane and avoid any risk of overturning during operation.

(4) Provide steel plate load-spreader pads to support outriggers and prevent them from subsiding.

(5) Fully extend outriggers or extension type crawlers to the maximum position.

(6) When the outriggers or crawlers cannot be extended to the maximum position, adjust the Rated Capacity of the mobile cranes to suit lower capacity commensurate to the actual extension length of outriggers or crawlers.

(7) Ensure that the actual Rated Capacity of the mobile crane is clearly shown and also advised to operators and Riggers.

(8) Activate the over-load prevention device of mobile cranes and accurately input the operational conditions of booms and outriggers.

(9) Cease the Hoisting Operation from time to time and check upon the condition of the outriggers or crawlers, implement adequate remedial measures if there is any subsidence and prohibit continuation of the Hoisting Operation until the crane has been re-inspected and certified as safe by the HSO.

(10) After the Hoisting Operation:

(a) When the mobile crane is not driven, fix the hooks of crane at the safe position;

(b) When the mobile crane is driven, take the following measures before driving:

(i) Attach fixing pin on each part;

(ii) Apply the brake of the turning device and winch drum; and

(iii) Turn off all switches related with operation of cranes.

5.4 RIGGING EQUIPMENT

5.4.1 Hoisting and Rigging Equipment

(1) All items of Rigging Equipment shall be labelled to show all pertinent information, such as the name of the manufacturer, date of manufacture, Rated Capacity, date of the latest periodic inspection~~,~~ and its expiration date, etc.

(2) The Contractor shall obtain Rigging Equipment from reputable manufacturers approved by the HSO and shall not make or repair his own Rigging Equipment at the Site.

(3) Rigging Equipment shall only be used:

(a) When certified as safe for use by the HSO in accordance with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*];

(b) Within the Rated Capacity; and

(c) In compliance with the manufacturer's written instructions.

(4) Rigging Equipment shall be removed from service, tagged as such and destroyed or removed from the Site, where required by the standards noted in JSSS 5.1.2 [*Compliance Standards*] including (but not limited to) the following conditions:

(a) Wire ropes

(i) Where one-tenth or more of the element wires are broken or cut in any one (1) strand;

(ii) Where the reduction ratio of diameter due to use, exceeds 7% of the original nominal diameter at the date of manufacture;

(iii) With kink or deformation; and

(iv) With excessive wear, corrosion or defect.

(b) Chains

(i) Where elongation due to use exceeds 5% of the original nominal length at the date of manufacture;

(ii) Where the diameter of links has reduced by more than 10 % since the date of manufacture; and

(iii) With excessive wear, cracks, corrosion or defect.

(c) Hooks, shackles

(i) Signs of deformation; and

(ii) With excessive wear, cracks, corrosion or defect.

(d) Synthetic fibre ropes or slings

(i) Broken or cut strands; and

(ii) With excessive wear or defect.

5.4.2 Further Safety Requirements for Rigging

The Contractor shall fully comply with the requirements of the standards noted in JSSS 5.1.2 [*Compliance Standards*] including taking the following measures to prevent the risk of injury:

(1) Attach colour-coded self-adhesive vinyl tape and labels for slings visibly indicating the month of inspection and whether suitable for use.

(2) Inspect all Rigging Equipment before start of work.

(3) Select and use suitable Rigging Equipment depending on the weight and shape of Goods.

(4) Apply appropriate set up, provide fittings and accessories including clips and friction pads during Hoisting Works to ensure that the hoisted load (including bundled loads) are secure and will not move or slip, for example, cable-laid slings referred to BS EN 13414-3 Steel wire rope slings – Safety, Part 3: Grommets and cable-laid slings.

(5) Hoist loads at or above the centre of gravity.

(6) Attach guide ropes to the hoisted loads to assist with positioning.

(7) Securely store and protect Rigging Equipment to maintain in good condition and to prevent damage from rain, dust or contamination.

CHAPTER 6: TEMPORARY WORKS

6.1 GENERAL REQUIREMENTS OF TEMPORARY WORKS

This Section 6.1 applies to all Temporary Works included in JSSS 6.

6.1.1 Design and Provision of Temporary Works Generally

Unless otherwise specified in the Particular Safety Specification, the Contractor shall take all necessary measures for the study, design, management, provision, safe use and safe removal of all Temporary Works as necessary to safely and systematically execute the Permanent Works and in accordance with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*], JSSS 1.37 [*Design and Management of Temporary Works*] and the specified standards.

The Contractor shall comply with the requirements specified in the Contract for Temporary Works and:

(1) Provide Temporary Works which are fit for the purpose for which they are intended and fully in accordance with the JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

(2) Manage the design, use and removal of Temporary Works fully in accordance with JSSS 1.37 [*Design and Management of Temporary Works*].

(3) Maintain and repair all Temporary Works when in use to ensure the continued optimal and safe performance.

(4) Monitor all Temporary Works when in use and any affected Permanent Works, existing buildings, structures, ground or surfaces that may be affected by the Temporary Works through regular inspection and (where necessary and specified) with relevant instrumentation to ensure that the Temporary Works are performing safely, to the designed limits and intended purpose.

(5) Ensure that:

(a) Modification of Temporary Works is not allowed unless it is authorised by the HSO;

(b) Unauthorised use of Temporary Works by any persons is not allowed;

(c) The HSO shall inspect all Temporary Works upon completion of erection and certify and label them as safe for use before any use is allowed;

(d) The HSO shall regularly inspect Temporary Works and certify and label them appropriately to ensure the continuous safe use or, in the event that faults are discovered, certify them as "Not Safe for Use" and prevent access to the Temporary Works until repaired and re-inspected;

(e) The HSO shall inspect Temporary Works upon the completion of the required Permanent Works and before Temporary Works are dismantled, demolished and removed accompanied by the Contractor's Temporary Works staff specified in JSSS 1.37 [*Design and Management of Temporary Works*] as appropriate, and certify that the Permanent Works are completed and the Temporary Works can be safely removed; and

(f) The HSO shall inspect after removal of the Temporary Works to ensure that removal has been completed properly and that no part of the Temporary Works remains, that any rectification of the Permanent Works is completed and all is left in safe order and condition.

(6) Safety Plan for Temporary Works

The Contractor shall include details of all Temporary Works in the Safety Plan to be

submitted in accordance with JSSS 1.7 [*Contractor's Safety Plans*].

6.1.2 Method Statements

Refer to JSSS 1.9 [*Contractor's Method Statements*].

6.1.3 Monitoring the Performance of Temporary Works

(1) The Contractor shall monitor the Temporary Works to demonstrate that they are performing safely, to the designed limits and for the intended purpose.

(2) For more details, refer to JSSS 2.1.7 [*Monitoring and Records*].

(3) Contract Compliance

Notwithstanding the requirements of JSSS 2.1.7 [*Monitoring and Records*], the Contractor is reminded of his overall responsibility under the Contract for the Temporary Works.

The Contractor shall satisfy himself that the monitoring criteria and requirements specified in JSSS 2.1.7 [*Monitoring and Records*], or in other respective Chapters of JSSS and/or in the Particular Safety Specification, are sufficient to comply with his obligations under the Contract and he shall take any additional measures necessary to ensure the adequacy, stability and safety of Temporary Works.

6.1.4 Compliance Standards

(1) By reference to JSSS 1.37 [*Design and Management of Temporary Works*] and unless otherwise specified in the Particular Safety Specification, the Contractor shall comply with Sections 1 and 2 of BS5975, Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework as management standard with respect to design, erection, use and dismantling of Temporary Works.

(2) In relation to Temporary Works, the Contractor shall, subject to JSSS 1.4.5 [*Specified Standards*] also comply with:

(a) Section 3: Falsework of BS5975, Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework; and

(b) Such standards that are referred to in particular parts of JSSS.

コメントの追加 **[SS57]:** No. 56

6.2 EARTHWORK SUPPORT

6.2.1 General

(1) Refer to JSSS Annex 1.1: [*Definitions and Abbreviations*] for the definition of Earthwork Support.

(2) The Contractor shall maintain the structural integrity of the Works and Other Properties that could be affected by the Excavation Works and shall provide and maintain whatever Earthwork Support is necessary to comply with this requirement and ensure the safety of all persons that are in, under or adjacent to any excavation and to avoid any damage.

(3) Earthwork Support shall include for example:

(a) Timberwork including sheeting, planking, strutting and support systems;

(b) Steel sheet piling including shoring, strutting and support systems;

(c) Specialised support systems such as diaphragm walling, steel pipe piling, contiguous piling, soldier piling and lagging, and the like;

(d) Ground improvement, slope stabilisation, injection, ground freezing and the like; and

(e) Ground Anchors.

(4) In the case of (a) and/or (b) following, the Earthwork Support may not be required if, in the opinion of the HSO, conditions of the excavation are sufficiently safe, stable and free from danger of movement or collapse, and if the HSO gives permission that no-Earthwork Support is required:

(a) Excavation in rock; and/or

(b) Excavation less than 1.5 m deep.

(5) For sloping or benched sides to excavations (in lieu of Earthwork Support), refer to JSSS 7.2.1 (3).

6.2.2 Planning and Design

The Contractor shall design all Earthwork Support so that it is fit for the purpose for which it is intended and take account of ground conditions and surrounding conditions including:

(1) The effects of ground water including liquefaction, boiling or piping, heave, displacement and the like.

(2) The effect of vibration from site operations including piling or ground improvement.

(3) The effect of adjacent road or rail traffic.

(4) The requirements for safe access and working space necessary to execute the Works.

6.2.3 Monitoring

Refer to JSSS 2.1.7 [*Monitoring and Records*] for general requirement of monitoring and records.

The Contractor shall prepare a Monitoring Plan covering visual and instrument monitoring based on Table 6.2.1 [*Example of Visual and Auditory Monitoring Items*] and Table 6.2.2 [*Example of Instrument Monitoring Items*]

The contents of the tables are reference only and the Contractor shall prepare a detailed Monitoring Plan and submit to the Engineer as a part of the Safety Plan or the Method Statement.

コメントの追加 **[SS58]:** No. 57

Table 6.2.1: Example of Visual and Auditory Monitoring Items

	Locations	Monitoring Items
1	Earthwork Support: Faces, sheeting and piling	Meander/horizontal displacement and vertical displacement along top. Crack, deflection and swelling. Water leakage, mud inflow. Opening of joints or gaps in Earthwork Support.
2	Earthwork Support: Piles, walings and struts	Deflection, deformation and abnormal sound of struts and walings and other members. Settlement, floatation and twist of piles. Vertical or horizontal displacement of walings, struts and other members. Opening of joints or breakage of cross members, or breakage and loosening of bolts.
3	Base of Excavation	Water spring and ground water flow. Sand boiling. Heaving of the base. Liquefaction.
4	Neighbouring or adjacent Ground, paving and roads	Cracks, collapse, subsidence of pavement or ground surfaces. Opening of joints in paving and kerbs.
5	Neighbouring or adjacent Buildings or Structures	Cracks, subsidence, deformation and tilting of structures.
6	Underground Utilities	Displacement or leakage of or damage to underground utilities.

コメントの追加 **[SS59]:** No. 58

Table 6.2.2: Example of Instrument Monitoring Items

	Locations	Monitoring Items
1	Earthwork Support: Faces, sheeting and piling	Displacement, stress of Earthwork Support. Earth pressure and water pressure acting on Earthwork Support.
2	Earthwork Support: Piles, walings and struts	Axial force of struts, other supports and ground anchors.
3	Base of Excavation	Displacement of base of excavation. Water pressure of ground water, rate of water inflow.

4	Neighbouring or adjacent ground, paving and roads	Displacement of neighbouring or adjacent ground. Ground water level.
5	Neighbouring or adjacent buildings or structures	Displacement; cracks, weakening, subsidence, deformation and tilting of structures.
6	Underground Utilities	Displacement or leakage of or damage to underground utilities.

6.2.4 General Safety and Construction Requirements

(1) Materials and equipment to be used for Earthwork Support shall be appropriate for the width and depth of the excavation and free from damage or defects that might impair their proper function.

(2) Workers shall not be allowed to enter any excavation until Earthwork Support is installed prior to the work commencing.

(3) Earthwork Support shall proceed progressively so that no excavated faces are left without support or at risk of weakening or collapse at any time.

(4) Excavation to a level greater than 60cm below the planned bottom level of support when the support itself is not yet installed shall not be allowed.

(5) If temporary removal of individual members of Earthwork Support is necessary, safety measures shall be taken to ensure the safety of workers, such as installing additional temporary struts to support the additional loads imposed on parts of the system.

(6) When removing Earthwork Support, the Contractor shall prohibit anyone other than the workers engaged in the removal work to enter the working area and vicinity.

(7) Backfilling and compaction of any excavation shall be performed in parallel with the removal of Earthwork Support.

6.2.5 Safety Measures for Shoring

(1) “Shoring” shall include walings, struts and like support.

(2) Shoring shall be securely installed and fixed to Earthwork Support to prevent detachment and any movement or failure.

(3) All members acting in compression (excluding diagonal struts) shall be butt-jointed, and timber shoring shall be jointed with two or more doubling plates.

(4) Connecting parts of shoring or diagonal shoring or intersections, shall be reinforced with backing plates and bolts (timber) and welding with reinforcing plates (steel).

(5) For earth retaining work with intermediate piles, fix struts on intermediate piles rigidly.

(6) When shoring is fixed to or relies on an existing structure or building, the Contractor shall ascertain that the structure or building is able to withstand the applied load.

(7) Gaps between earth retaining wall (steel sheet piles, H-shape steel piles and the like) and walings shall be filled with mortar, concrete, steel plates and suitable wedges.

(8) Connections between struts and walings shall be reinforced with ready-made stiffeners, stiffener plates, concrete/mortar filling, stiffener jacks, etc.

6.2.6 Safety Measures for Ground Anchor Works

(1) Anyone other than designated personnel shall not operate the boring machine.

(2) No one (except those essential to the post-tensioning operations) shall be permitted to be behind the tensioning jack during tensioning to prevent any injury through breaking of the anchor tendon during tensioning.

(3) The Contractor shall check any damage in the grout hoses and joints before commencing any grout injection.

6.2.7 Adjacent Goods, Excavated Spoil and the like

(1) When placing any Goods, excavated spoil and the like on the ground surface at the top and adjacent to any excavation, the Contractor shall take measures to prevent it from falling.

(2) The Contractor shall not place any Goods, excavated spoil, backfill material and the like where the weight exceeds the load considered in the design of the Earthwork Support.

6.3 COFFERDAMS

6.3.1 General

(1) Refer to JSSS Annex 1.1: [*Definitions and Abbreviations*] for the definition of Cofferdam.

(2) Cofferdams are generally constructed as earth dykes, caissons, steel sheet piling, double steel sheet piles, steel pipe piles and the like.

6.3.2 Planning and Design

The Contractor shall design Cofferdams so that they are fit for the purpose for which they are intended and take account of ground conditions and surrounding conditions including:

(1) The effect of vibration from site operations including piling or ground improvement.

(2) Access and working space necessary to execute the Works.

(3) River discharge, water levels, tide levels, wave height, free board, seismic load, external force and any other relevant water conditions.

(4) Waterborne traffic.

(5) Avoidance of any damage by piling operations and the protection of the structural integrity of existing river or canals, banks, dykes and the like.

(6) Reduction of river cross sectional area, increased flow rates and protection of the structural integrity of existing river or canal banks, dykes and the like.

(7) Effects of tides, wave action, flooding and the like, the consequent need for additional shoring and avoidance of loosening of shoring and joints.

(8) Provision of at least two safe evacuation routes from the working areas by means of ladders, stairs, etc. to evacuate in the case of any danger of collapse of or inundation in the Cofferdam.

(9) Provision of life-saving equipment including buoyancy jackets, lifebuoy, ropes and (where necessary) standby boats.

(10) Measures for avoiding water pollution from construction and dismantling of Cofferdams.

(11) Measures for safe dismantling and removal.

6.3.3 Monitoring

Refer to JSSS 2.1.7 [*Monitoring and Records*] for general requirement of monitoring and records.

The Contractor shall prepare a Monitoring Plan covering visual and instrument monitoring based on Table 6.3.1 [*Example of Visual and Auditory Monitoring Items*] and Table 6.3.2 [*Example of Instrument Monitoring Items*].

The contents of the tables are reference only and the Contractor shall prepare a detailed Monitoring Plan and submit to the Engineer as a part of the Safety Plan or the Method Statement.

Table 6.3.1: Example of Visual and Auditory Monitoring Items

	Locations	Monitoring Items
1	Cofferdam Generally	Water seepage. Ability and capacity of pumping arrangements to maintain safe working conditions. Meander/horizontal displacement and vertical displacement

		along top. Crack, deflection and swelling. Opening of joints.
2	Piles, walings, struts, shoring and other members	Deflection, deformation and abnormal sound of piles, walings, struts, shoring and other members. Opening of joints or breakage of piles, cross members, or breakage and loosening of bolts.
3	Base of Excavation	Water spring and ground water flow. Sand boiling. Heaving of the base.
4	Neighbouring Properties or Structures on or outside the Site	Cracks, subsidence, deformation and tilting of structures.

Table 6.3.2: Example of Instrument Monitoring Items

	Locations	**Monitoring Items**
1	Cofferdam Generally	Displacement, stress of Earthwork Support. Earth pressure and water pressure acting on Earthwork Support.
2	Shoring and struts	Axial force of strut, other supports and ground anchors.
3	Base of Excavation	Displacement of base of excavation. Water pressure of spring of water, water inflow.
4	Neighbouring Properties or Structures on or outside the Site	Displacement: cracks, weakening, subsidence, deformation and tilting of structures.
5	Underground Utilities	Displacement, damage or leakage of underground utilities.

6.3.4 General Safety and Construction Requirements

(1) For shoring works, refer to JSSS 6.2.5[*Safety Measures for Shoring*].

(2) The Contractor shall provide training to all Contractor's Personnel who are to work on the construction, maintenance and removal of the Cofferdam or within the Cofferdam, so that they are aware of all risks and countermeasures including water leakage, adverse weather, severe waves or adverse water conditions, so that they can work safely and when necessary, evacuate the working areas efficiently and safely.

(3) The Contractor shall display visible and clear warning notices of all hazards and advisory notices giving directions and information, including emergency contacts, safe escape routes, directions to and locations of life-saving equipment, assembly areas, evacuation

boats and the like.

(4) The Contractor shall implement measures to prevent collisions with waterborne traffic, including warning signs and lights during the night or in heavy rain mist or fog.

(5) The Contractor shall establish a system to confirm the safety of the Cofferdams, appoint a person-in-charge who shall be present at all times and shall be responsible for issuing an evacuation order if and when necessary.

(6) The Contractor shall evacuate Contractor's Personnel whenever there is any danger due to water leakage through Cofferdams or from the ground within the working area.

(7) Whenever any defect is identified in the Cofferdam, the Contractor shall implement repair and improvement measures to ensure the safety of Contractor's Personnel and prevent any personnel from re-entering the Cofferdam until it has been inspected by the HSO and certified by him to be safe for use.

コメントの追加 **[SS60]:** No. 59

6.3.5 Excessive and Sudden Rise in Water Level.

(1) The Contractor shall analyse any risk due to sudden rise of water level and excessive water level above the design basis for the highest water level and prepare for this as applicable in the Safety Plan.

(2) This shall include procedures for monitoring water levels as described below.

(a) Monitoring water levels with instruments and recording equipment at the Site and obtaining forecasting information of water levels;

(b) Communications among persons in charge of monitoring of water levels, persons responsible for the works in the Cofferdams, the HSO and workers in the Cofferdam;

(c) Instructions to Contractor's Personnel for evacuation;

(d) Stop work in accordance with JSSS 1.13 [*HSO – Scope of Duties and Authority*]; and

(e) Resume work when water level has subsided and after inspection and certification by the HSO that it is safe to do so.

6.3.6 Monitoring Water Level and Other Conditions

In addition to the requirements of JSSS 2.1.7 [*Monitoring and Records*], the Contractor shall monitor and keep records of all climatic, river, lake or marine conditions in the direct vicinity of any Cofferdam including for example, the water level at various times throughout the day, tidal data, speed and direction of waterflow, wave height, wind speed and direction.

The Contractor shall provide all instruments and facilities to obtain the data and submit reports to the Engineer on a daily basis and compile on weekly basis.

6.4 WALKWAYS

6.4.1 General

(1) This Section includes safety measures relating to the safe movement of persons to and around the Site with respect to walkways.

(2) Refer to JSSS 2.5.7 *[Preventing Falls from Walkways]* for interpretation of the word "walkways".

(3) Ladders and stepladders (other than fixed ladders) shall not be used for walkways in principle. Ladders and stepladders may be used only if the HSO considers the risk of their use to be low.

(4) For temporary steps and staircase structures the requirements of JSSS 6.5 [*Scaffolding*] shall apply.

(5) For Fall prevention from walkways, ladders and stepladders the requirements of JSSS 2.5 [*Fall Prevention*] shall apply.

(6) Details of the following shall be included in the Safety Plan required by JSSS 1.7 [*Contractor's Safety Plans*] and JSSS 6.1.1 (6) [*Safety Plan for Temporary Works*]:

(a) Locations and available periods of walkways to be provided;

(b) Drawings of walkway structures, indicating structure type, materials and main dimensions for bridge type walkways where the height and length is 10m or more;

(c) Types of temporary walls, barriers or other separation between walkways and working areas, roads or footpaths on or around the Site; and

(d) Locations of emergency exits and evacuation routes.

(7) The Contractor shall:

(a) Provide designated walkways to, in and around the various workplaces at the Site to ensure the safe and secure movement of all persons at all times;

(b) Provide and maintain clear signage so that all users are aware of the locations and routes;

(c) Provide and maintain adequate lighting;

(d) Ensure that walkways have sufficient dimensions and load-bearing capability for the intended purpose;

(e) Ensure that there are no obstacles in walkways and that surfaces are level and safe, maintain all in a clean and orderly condition to avoid any falls, slips and injury;

(f) Ensure that walkways do not exceed a gradient of 30 degrees. Steeper gradients shall be provided with steps or staircases or ladders where appropriate; and

(g) Ensure that ramps, steps and staircases have slip resistant surfaces and that they are provided with handrails and toe boards in accordance with JSSS 2.5.5 [*Handrails*] and JSSS 2.5.6 [*Toeboards*].

6.4.2 Emergency Exits and Safe Evacuation Routes

The Contractor shall provide clear and illuminated signage so that all persons are made aware of the locations of emergency exits and safe evacuation routes and maintain all such locations and routes in a clean, safe and readily available condition.

6.4.3 Vertical Access

The Contractor shall provide steps, stairs and ramps as means of providing safe access or egress from excavations or different working levels.

Steps, stairs and ramps shall be constructed as follows:

(1) With Scaffolding in accordance with JSSS 6.5 [*Scaffolding]*, provided with handrails and non-slip treads.

(2) With purpose made timber or metal ramps comprising plywood boarding and structural timber framing.

6.4.4 Ladders and Stepladders

For the purposes of interpretation and unless otherwise stated in JSSS the word “ladders” shall be deemed to mean portable ladders, namely those that can be easily moved or carried even if temporarily restrained and that are not an integral part of a building, structure or equipment.

Fixed ladders meaning those that are permanently attached to a building, structure, or equipment shall be the subject of separate design by the Contractor if for use in Temporary Works or by the Employer if for use in Permanent Works.

Fixed ladders whether for use in Temporary Works or Permanent Works shall be provided with fall protection for lengths of 7.32 metres and above in accordance with ANSI standard A14. 2-1990.

コメントの追加 **[SS61]:** No. 60

The Contractor shall comply with the following requirements regarding the use of ladders and stepladders:

(1) Ladders shall:

(a) Be of sound structure, clean and not contaminated by any slippery material;

(b) Be without visible signs of defect, damage, corrosion, and shall otherwise in safe condition;

(c) Be at least 30 cm wide;

(d) Have steps with an interval of 25cm to 35cm and evenly spaced; and

(e) Have slip-proof steps or have other measures to prevent slipping.

(2) Stepladders shall

(a) Be of sound structure, clean and not contaminated by any slippery material;

(b) Be without visible signs of defect, damage, corrosion, and shall otherwise in safe condition;

(c) Have an angle between the front rail and the floor not exceeding 75 degrees and for folding stepladders they shall be equipped with a lock (such as a spreader with lock) to secure the angle made by the front rail and the floor;

(d) Steps shall be non-slip and of sufficient size to ensure safe operation; and

(e) Rails shall have non-slip feet or shoes.

(3) Use of ladders and stepladders

The Contractor shall ensure with respect to use of both ladders and stepladders that:

(a) Users shall read and follow all labels/markings on ladders or stepladders, be aware of and never exceed the maximum load rating of the ladder or stepladder and of the weight it is supporting, including the weight of any tools or equipment;

(b) Users shall avoid electrical hazards, always look for overhead power lines before handling ladders or stepladders. Avoid using metal ladders or stepladders near power lines or exposed energised electrical equipment;

(c) Ladders or stepladders shall be inspected prior to use. If a ladder or stepladder is damaged, it shall be removed from service and suitably tagged until repaired or

discarded; and

(d) Ladders or stepladders shall only be placed on a stable, firm and sufficiently strong base giving level and safe support and so that the rungs or steps remain horizontal, as well as any loading placed on it;

(4) Additional Requirements for Use of ladders

The Contractor shall ensure with respect to use of ladders:

(a) Ladders shall maintain an angle between foot and floor of L (horizontal length): H (height) = 1: 4 (75.5 degrees);

(b) Ladders shall have the top projecting at least 1 m over the landing floor;

(c) Ladders shall not be placed on boxes, or other unstable bases to obtain additional height and connected ladders to give greater height or reach shall not be allowed;

(d) Suspended ladders shall be anchored in a secure manner so that they cannot be displaced or swing;

(e) Ladders shall be secured before any use and prevented from slipping during use by:

(i) Securing the side rails at or near the top and the bottom;

(ii) Providing an effective anti-slip shoe or foot; and

(iii) Having another worker support the lower part of the ladder.

(f) No extendable ladder shall be used where its sections cannot be locked and which could therefore move while in use; and

(g) Where a ladder or a series of ladders rise for a vertical height of 9 m or more above the base level, safe landing areas or rest platforms shall be provided at suitable intervals wherever possible.

(5) Additional Requirements for Use of Stepladders

The Contractor shall ensure with respect to use of stepladders:

(a) Stepladders shall not be used for work at heights of 2m or more. The Contractor shall adopt other measures for work in excess of 2m such as or providing Scaffolding in accordance with JSSS 6.5 [*Scaffolding*];

(b) Step ladders shall not be used as a single ladder or in a partially closed position;

(c) Treads of stepladders shall have the correct sized area and slip resistant finish for safe working;

(d) Restraint Clasps shall be securely locked before any use;

(e) Stepladders shall not be placed on unstable or uneven surfaces;

(f) Stepladders shall not be positioned in front of doors;

(g) The top rung of a ladder or step of a step ladder shall not be used as a rung/step unless designed for that purpose;

(h) For use of Stepladders as a support for trestle Scaffolds refer to JSSS 6.5 [*Scaffolding*]; and

(i) The user can maintain a safe handhold when carrying a load unless this is otherwise justified by the height of the task, nature of work and the like.

6.4.5 Inspection

In accordance with JSSS 1.13 [*HSO - Scope of Duties and Authority*] the HSO shall regularly

inspect all walkways, ladders and step ladders, ensure that same are safe and fit for the intended purpose and visibly certify each as safe for use or otherwise.

6.5 SCAFFOLDING

6.5.1 General

(1) This Section contains requirements for various types of Scaffolding including supported scaffolds (for example tube and coupler scaffolds and fabricated frame scaffolds), mobile scaffolds, suspended scaffolds, trestle scaffolds and mobile elevating work platforms.

(2) Not all types of Scaffolding are separately described in this Section and the requirements of this Section are therefore of general application. Requirements for any one (1) type of Scaffolding shall also apply generally to all types and configurations unless otherwise stated or apparent from the wording and context.

(3) All Scaffolding shall be designed, erected, tested, inspected, used, dismantled and removed by Contractor's Personnel that have been trained and certified for such operations in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*].

(4) All Scaffolding, shall be carried out in compliance with the manufacturer's written instructions or the design of the Contractor.

(5) The design, management, provision, safe use and safe removal of Scaffolding shall comply with the requirements of JSSS 6.1.1 [*Design and Provision of Temporary Works Generally*].

(6) Unless specified elsewhere in JSSS or in any of the compliance standards, all Scaffolding and Scaffold components shall be capable of supporting, without failure, its own weight and at least 4 times the maximum intended load applied or transmitted to it.

(7) Scaffolds and Scaffold components shall not be loaded in excess of their maximum intended loads or rated capacities, whichever is less.

(8) Scaffolding shall not be used for any purpose other than the intended original purpose and for example shall never be used for hoisting loads. The Contractor shall provide other specific types of Contractor's Equipment (such as material hoists) for that purpose.

(9) Scaffolding shall be removed immediately upon completion of the work for which it is provided.

6.5.2 Compliance Standards

(1) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall comply with any one (1) of the following standards:

(a) OSHA 1926 Subpart L [Scaffolds];

(b) ANSI/ASSP A10.8 – 2019 Scaffolding Safety Requirements equipment - Part 1: Scaffolds [Performance requirements and general design]; and

(c) BS EN12811-1:2003 Temporary works equipment - Part 1: Scaffolds [Performance requirements and general design]

6.5.3 Notices to be Displayed on Scaffolds

(1) Following inspections by HSO, suitable signage shall be applied to Scaffolds clearly indicating for example:

(a) "Scaffold Complete and Safe For Use";

(b) "Scaffold Not Complete - Do Not Use"; and

(c) "Scaffold Not Safe For Use".

(2) When any Scaffold is to be used for loading of Goods, the Contractor shall display a notice indicating the maximum load capacity of each Scaffold.

(3) Scaffolds shall also be tagged with the names of the erector and the person responsible for inspection and maintenance of the Scaffold.

(4) All notices shall be clearly visible and in easy-to-see locations.

6.5.4 Scaffolding Assembly, Erection, Alteration and Dismantling Generally

The Contractor shall take the following measures when assembling or erecting, altering or dismantling all types of Scaffolding:

(1) Scaffolding shall be assembled or erected, altered and dismantled only by competent personnel and the work should always be carried out under the direction of a competent Superintendent.

(2) Working areas where Scaffolding is being assembled or erected, altered and dismantled shall be enclosed with temporary fences or barriers. The Contractor shall prevent entry of any non-authorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry*].

(3) During erection of Scaffolding 2m high and above, boarded areas shall be provided for safe temporary storage of Scaffolding tubes, couplings, fittings or components and other materials and equipment.

(4) All workers engaged in the assembly or erection, alteration and dismantling of any Scaffolding shall be provide with PFAS and ensure that such workers use this.

(5) Scaffold boards shall each be securely fixed at a sufficient number of points to provide constant support with no movement or dislocation and no gaps that may create a dropping hazard.

(6) When moving Scaffold boards, ensure that they are securely supported in at least three (3) locations, the length of any projection from supports shall be at least 10cm and not exceeding one-eighteenth of the length of the Scaffold boards.

(7) When stacking the timber sole plate or runners ensure that they are stacked in the longitudinal direction, over supports and with 20 cm overlaps.

6.5.5 Inspection and Maintenance of Scaffolding

Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the Contractor shall comply with the following:

(1) Every Scaffold from which a person could fall 2m or more shall be thoroughly examined by the HSO (or his delegated assistant):

(a) Before it is brought into use;

(b) After any substantial alteration or extension;

(c) At least once in every 7 days; and

(d) Whenever it has been exposed to adverse climatic conditions, earthquake or other factors which may have affected its safety.

(2) A written record of the examination and regular inspections with details of any repair measures shall be prepared and kept by the HSO.

(3) The examinations and regular inspections shall include:

(a) Check that the Scaffold is provided and used in accordance with the Method Statement, Safety Plan and its design;

(b) Condition of Working Platforms and of any damage to fixings;

(c) Condition and any loosening at the fastening, connecting and mounting, portions of standards, ledgers, brackets, and the like;

(d) Condition and any damage and corrosion of couplings, fittings, clamps and accessories;

(e) Condition and any damage and corrosion of fall prevention facilities and that they are intact and secure;

(f) Condition of mountings and presence of toe boards;

(g) Condition of bases, screw jacks, castors, brakes, sole plates and the like and ensure there is no movement or settlement;

(h) Condition of mountings and presence of diagonal bracings, stays, anchors, ties and other bracing, support or reinforcement materials; and

(i) Condition of mountings and presence of posts, standards, ledgers and transoms.

(4) The Contractor shall carry out all necessary remedial and repair work necessary to rectify any deterioration, defect or damage and shall, if necessary, stop the use of the Scaffolding until such work has been properly completed, re-inspected and re-certified as safe for use by the HSO.

6.5.6 Scaffold Platforms

Scaffold platforms shall comply with the following:

(1) Each platform on all working levels of Scaffolding shall be fully planked or decked between the front uprights and the handrail supports as follows:

(a) Platforms shall be of adequate size and strength and with true dimension and no twist or bending, no splits, holes or damage;

(b) Each platform unit shall be installed so that the space between adjacent units and the space between the platform and the uprights is no more than 2.5 cm wide, except where the Contractor can demonstrate that a wider space is necessary;

(c) Where the Contractor makes the demonstration provided for in paragraph (b) above, the platform shall be planked or decked as fully as possible and the remaining open space between the platform and the uprights shall not exceed 24 cm.; and

(d) The requirement to provide full planking or decking does not apply to platforms used solely as walkways or solely by the workers performing Scaffold erection or dismantling. In these situations, only the planking that the Contractor establishes is necessary to provide safe working conditions is required.

(2) Except as may be provided separately for individual types of Scaffold, Scaffold platforms and walkways shall be at least 45 cm wide.

Where it is not practicable to provide 45 cm width, the Contractor shall secure a width as wide as feasible for the work, and the workers on those platforms and walkways shall be protected from fall hazards by the use of handrails and/or personal fall arrest systems.

(3) Except as provided separately for individual types of Scaffold, the front edge of all platforms shall not be more than 36 cm from the face of the work, unless handrails are erected along the front edge and/or personal fall arrest systems are used to protect the workers from falling.

(4) Further requirements to those specified above, shall comply with OSHA 1926.451 [General requirements, (b) Scaffold platform construction].

6.5.7 Supported Scaffolds

(1) General

(a) Scaffolds with a height to base width (including outrigger supports, if used) ratio

of more than four to one (4:1) shall be restrained from tipping by guying, tying, bracing, or equivalent means;

(b) Poles, legs, posts, frames, and uprights shall bear on base plates and mud sills or other adequate firm foundation;

(c) Footings shall be level, sound, rigid, and capable of supporting the loaded Scaffolding without settling or displacement;

(d) Poles, legs, posts, frames, and uprights shall be plumb and braced to prevent swaying and displacement;

(e) When moving platforms to the next level, the existing platform shall be left undisturbed until the new bearers or end frames have been set in place and braced prior to receiving the new platforms; and

(f) Further requirements to those specified above, shall comply with OSHA 1926.451 [General requirements, (c) Criteria for supported scaffolds].

(2) Tube and Coupler Scaffolds

(a) Transverse bracing forming an "X" across the width of the Scaffold shall be installed at the Scaffold ends and at least at every third set of posts horizontally (measured from only one end) and every fourth runner vertically;

(b) On straight run Scaffolds, longitudinal bracing across the inner and outer rows of posts shall be installed diagonally in both directions, and shall extend from the base of the end posts upward to the top of the Scaffold at approximately a 45 degree angle;

(c) Where conditions preclude the attachment of bracing to posts, bracing shall be attached to the runners as close to the post as possible;

(d) Bearers shall be installed transversely between posts, and when coupled to the posts, shall have the inboard coupler bear directly on the runner coupler. When the bearers are coupled to the runners, the couplers shall be as close to the posts as possible;

(e) Runners shall be installed along the length of the Scaffold, located on both the inside and outside posts at level;

(f) Couplers shall be of a structural metal, such as drop-forged steel, malleable iron, or structural grade aluminium, the use of grey cast iron is prohibited; and

(g) Further requirements to those specified above, shall comply with OSHA 1926.452 [Additional requirements applicable to specific types of scaffolds, (b) Tube and coupler scaffolds].

(3) Fabricated Frame Scaffolds

(a) Frames and panels shall be braced by cross, horizontal, or diagonal braces, or combination thereof, which secure vertical members together laterally. The cross braces shall be of such length as will automatically square and align vertical members so that the erected Scaffold is always plumb, level, and square. All brace connections shall be secured;

(b) Frames and panels shall be joined together vertically by coupling or stacking pins or equivalent means;

(c) Where uplift can occur, which would displace Scaffold end frames or panels, the frames or panels shall be locked together vertically by pins or equivalent means;

(d) Brackets used to support cantilevered loads shall:

(i) Be seated with side-brackets parallel to the frames and end-brackets at 90

degrees to the frames;

(ii) Not be bent or twisted from these positions; and

(iii) Be used only to support personnel, unless the Scaffold has been designed for other loads.

(e) Further requirements to those specified above, shall comply with OSHA 1926.452 [Additional requirements applicable to specific types of scaffolds, (c) Fabricated frame scaffolds].

6.5.8 Suspended Scaffolds

(1) General

(a) Suspended Scaffolds comprise Working Platforms suspended from upper levels for example with ropes, cables or chains and all necessary support framing, with or without Hoisting Equipment.

(b) Further requirements to those specified above for suspended Scaffolds, shall comply with:

(i) OSHA-1926.451 [General requirements]; and

(ii) OSHA 1926.452 [Additional requirements applicable to specific types of scaffolds].

(2) The following safety measures shall apply to interior hung Scaffolds which are suspended from roof structures, ceiling beams or other structural members:

(a) Capacity: of interior hung Scaffolds:

(i) Each Scaffold and Scaffold component except as provided in (ii) below shall be capable of supporting, without failure, its own weight and at least 4 times the maximum intended load applied or transmitted to it; and

(ii) Each suspension rope, including connecting hardware, used on non-adjustable suspension Scaffolds shall be capable of supporting, without failure, at least 6 times the maximum intended load applied or transmitted to that rope.

(b) Construction: of interior hung Scaffolds:

(i) Overhead supporting members (roof structure, ceiling beams, or other structural members) shall be inspected and checked for strength before the Scaffold is erected; and

(ii) Suspension ropes and cables shall be connected to the overhead supporting members by shackles, clips, thimbles, or other means that meet equivalent criteria (e.g., strength, durability).

(c) Inspection:

(i) Scaffolds shall be inspected before every work shift, and if any abnormality is found, the work shall be stopped; repairs made and the Scaffold re-inspected in accordance JSSS 6.5.5 (4); and

(ii) Wire ropes, chains, hooks and shackles used in the Scaffolds shall be inspected before every work shift in accordance with JSSS 5.4.1 [*Hoisting and Rigging Equipment*] If any abnormality is found, they shall be replaced.

(d) Prohibited activity

The use of any ladders or stepladders on suspended Scaffolds shall be prohibited.

6.5.9 Mobile Scaffolds

(1) Mobile Scaffolds shall be braced by cross, horizontal, or diagonal braces, or combination thereof, to prevent distortion or collapse of the Scaffold and to secure vertical members together laterally so as to automatically square and align the vertical members. Scaffolds shall be plumb, level, and squared. All brace connections shall be secured.

(2) Scaffold casters and wheels shall be locked with positive wheel and/or wheel and swivel locks, or equivalent means, to prevent movement of the Scaffold while the Scaffold is used in a stationary manner.

(3) Manual force used to move the Scaffold shall be applied as close to the base as practicable, but not more than 1.5 m above the supporting surface.

(4) Power systems used to propel mobile Scaffolds shall be designed for such use. Forklifts, trucks, similar motor vehicles or add-on motors shall not be used to propel Scaffolds unless the Scaffold is designed for such propulsion systems.

(5) Platforms shall not extend outward beyond the base supports of the Scaffold unless outrigger frames or equivalent devices are used to ensure stability.

(6) Where levelling of the Scaffold is necessary, screw jacks or equivalent means shall be used.

(7) Caster stems and wheel stems shall be pinned or otherwise secured in Scaffold legs or adjustment screws.

(8) Safety measures shall be applied before relocating the Scaffolds:

(a) Check the floor surface in advance to prevent the Scaffold from overturning due to any irregularities or obstructions;

(b) Move the Scaffold only after releasing brakes on all castors;

(c) Do not move the Scaffold when any workers or Goods are on the Scaffold;

(d) Ensure that there are no obstructions in the route including any overhead obstructions; and

(e) Do not allow any persons other than workers engaged in the relocation to enter the moving areas of the Scaffold or in the vicinity.

(9) Prohibited activity

Use of the Mobile Scaffolds shall be prohibited for the following:

(a) Use as a support for lifting dropping Goods, debris or waste materials or for dropping same;

(b) Use for the purpose of providing a barrier by covering with sheet material with the risk of collapse due to exposure to wind;

(c) Use for work of grit blasting or water jetting, where the reaction force can destabilise the Scaffold or workers on the Scaffold; and

(d) Use as floor to support mobile ladders, stepladders, trestles.

(10) Further requirements to those specified above shall comply with OSHA 1926.452 [Additional requirements applicable to specific types of scaffolds, (w) Mobile scaffolds].

6.5.10 Trestle Scaffolds

(1) Trestle Scaffolds can comprise:

(a) Special proprietary type free-standing trestle platforms; or

(b) Scaffold boards or lightweight staging boards supported on stepladders or other tripod type ladders.

(2) For requirements on Stepladders refer to JSSS 6.4.4 [*Ladders and Stepladders*].

(3) The following safety measures shall apply:

(a) The distance between the centre lines of the supporting stepladders shall not exceed 1.8m, width of the Scaffold boards shall be at least 45 cm;

(b) Scaffold boards shall not be placed any higher than the second highest rung or step of the ladder supporting the platform;

(c) If timber Scaffold boards are used, the overlap between boards shall be at least 20cm; and

(d) The length of projection of the platform from the end support shall be at least 10cm and not more than one-eighteenth of the length of the boards.

6.5.11 Mobile Elevating Work Platforms

This Clause specifies requirements for mobile elevating work platforms (also known as aerial lifts) including extendable boom platforms, articulating boom platforms, vertical towers and a combination of any such devices.

(1) The following safety measures shall apply for placing and operating mobile elevating work platforms:

(a) Only trained Contractor's Personnel, certified as such by the HSO shall be permitted to operate in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*];

(b) All operation shall be carried out in accordance with the manufacturer's written instructions;

(c) Mobile elevating work platforms shall never be used beyond the load limit recommended by the manufacturer, which shall also be clearly displayed on the equipment; and

(d) Safety devices shall not be switched off or isolated.

(2) Measures before operation of mobile elevating work platform:

(a) Designate operation as "Dangerous Work" and in accordance with JSSS 2.3 [*Prohibition of Entry*] demarcate working areas and take measures to prevent entry to unauthorised personnel;

(b) Place a Spotter, in accordance with JSSS 2.4 [*Spotters*] to guide the mobile elevating work platform and, in case of emergency to properly address the situation (e.g. to call help when the operator is incapacitated);

(c) Determine signals in accordance with JSSS 2.4.5 [*Signals*], and

(d) Determine in advance the appropriate working speed limit for the mobile elevating work platform according to the height of the Working Platform and the length of the boom, etc. and ensure that the operator never drives the equipment in excess of this limit.

(3) Measures at locating mobile elevating work platform:

(a) The parking brakes of vehicle shall be set;

(b) Wheel chocks shall be installed before using the mobile elevating work platforms on an incline, provided they can be safely installed;

(c) When outriggers are used, they shall be positioned on pads or a solid surface; and

(d) Lift controls shall be tested each day prior to use to determine that such controls are in safe working condition.

(4) Measures at operation on mobile elevating work platform:

(a) Workers shall always stand firmly on the floor of the basket/Working Platform, and shall not sit or climb on the edge of the basket or use planks, ladders, or other devices for a work position;

(b) Workers shall use PPE including PFRS;

(c) Workers shall be prohibited from taking dangerous actions such as moving from the working basket/Working Platform to neighbouring structure, standing on and working from handrail;

(d) When the mobile elevating work platform has both platform (upper) and lower controls, the upper controls shall be in or beside the platform within easy reach of the operator. Lower controls shall provide for overriding the upper controls. Controls shall be plainly marked as to their function. Lower level controls shall not be operated unless permission has been obtained from the worker in the lift, except in case of emergency;

(e) When leaving the operating position and when work is stopped the operator of the mobile elevating work platform shall:

(i) Put the Working Platform in the lowest position;

(ii) Stop the prime engine/motor; and

(iii) Apply the parking brake securely and ensure the equipment is securely parked.

(f) Stop work at a height of 2 m or more in case of adverse weather in accordance with JSSS 2.7 [*Adverse Weather Requirements*].

(5) Measures of moving mobile elevating work platform

(a) Mobile elevating work platform shall not be moved when the boom is elevated in a working position with workers in the basket, except for equipment which is specifically designed for this type of operation; and

(b) Before moving the mobile elevating work platform for travel, the boom(s) shall be inspected to see that it is properly cradled and outriggers are in stowed position.

(6) Inspection and maintenance of mobile elevating work platform

(a) Carry out inspection in accordance with JSSS 4.2.1 [*Requirements Generally*]; and

(b) Carry out maintenance, repair and installation/removal of the Working Platform in accordance with JSSS 4.2 [*Inspection, Maintenance and Repair*] and JSSS 4.3 [*Safety Requirements*].

(7) Prohibition of use for other purposes

Mobile elevating work platforms shall not be used for any purpose other than the intended original purpose and for example shall never be used for hoisting loads.

6.6 ELEVATED ACCESS STRUCTURES

6.6.1 General

This Section includes safety measures relating to Elevated Access Structures which act as act as temporary access, parking, working and/or storage areas which also accommodate Contractor's Equipment, Goods and temporary facilities as necessary to permit the construction operations to be performed from these structures on the underlying or adjacent working area(s) within the Site.

6.6.2 Design and Management Generally

(1) The design, management, provision, safe use and safe removal of Elevated Access Structures shall comply with the requirements of JSSS 6.1.1 [*Design and Provision of Temporary Works Generally*].

(2) For related JSSS requirements, refer to the following and other related parts of JSSS including:

(a) JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*]; and

(b) JSSS 1.37 [*Design and Management of Temporary Works*].

(3) Erection and Removal of Elevated Access Structures

The Contractor shall:

(a) Enclose the working area where possible with temporary fences or barriers, prevent entry of any unauthorised personnel or prevent vessels from entering in the case of offshore or river, lake or marine works and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry*];

(b) Use of Measures to prevent Workers, Vehicles, Contractor's Equipment and Goods from falling;

The Contractor shall design and provide suitable measures to prevent workers falling including for example handrails specified in JSSS 2.5.5 [*Handrails*] to the perimeter of Elevated Access Structures.

The Contractor shall design and provide suitable measures to the perimeter of Elevated Access Structures prevent Vehicles, Contractor's Equipment and Goods falling including for example steel edge barriers and kerbs.

All edge barriers and kerbs shall be painted in black and yellow bands to show them as a hazard.

(c) Use of Measures to prevent collision with vessels;

For marine work or work in rivers or lakes, the Contractor shall provide all necessary warning signs, audible alarms, beacons and lighting and serve all notices to the relevant authorities as necessary to ensure that all shipping, boats and other vessels are aware of changes to navigation due to the presence of any Elevated Access Structures and that all risk of collision is avoided.

6.6.3 Further Safety Requirements

The Contractor shall take all necessary measures to ensure the safe provision, use and removal of Elevated Access Structures, including but not restricted to the following:

(1) Provide warning notices clearly showing the maximum Rated Capacity in clearly visible locations.

(2) Always respect the maximum Rated Capacity, taking account of all the persons/personnel, vehicles, Goods, etc. on the Elevated Access Structures.

(3) Provide any further signs containing user information or other mandatory usage requirements such as speed limits and markings all as necessary to demarcate roadways and walkways, working, storage, parking and other areas.

(4) Designate all work to and on any Elevated Access Structures and during use, as Dangerous Work and take all further measures that are required by JSSS 2.3 [*Prohibition of Entry*].

(5) Provide walkways in accordance with JSSS 6.4 [*Walkways*]

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(6) Provide adequate lighting to ensure the safety of Contractor's Equipment, equipment of other parties, vehicles and persons in transit or whilst working.

(7) (for offshore work) Provide rescue and lifesaving equipment to be used in the event that any persons fall into the water, including a rescue boat and life belts or the like.

(8) Provide PFAS or PFRS to workers where appropriate including those engaged in the construction and removal of the Elevated Access Structures.

(9) Prevent any accident or collision by ensuring that all Contractor's Personnel that may be working on Elevated Access Structures and any Employer's personnel and other persons that may be present on such structures are fully informed about the work that may be in progress from time to time, including transportation and delivery of Goods and of the measures and any precautions that must be complied with.

(10) Provide relevant training in accordance with JSSS 1.20 [*Safety Induction Training*] to ensure the safety of all persons before they commence work on the Elevated Access Structures.

6.6.4 Inspection and Maintenance

Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the Contractor shall comply with the following:

(1) Every Elevated Access Structure shall be thoroughly examined by the HSO:

(a) Before it is brought into use;

(b) After any substantial alteration or extension;

(c) At least once in every 7 days; and

(d) Whenever it has been exposed to adverse climatic conditions, heavy seas, earthquake or other factors which may have affected its safety.

(2) A written record of the examination and regular inspections and details of any repair measures shall be prepared by the HSO.

(3) The examination and regular inspections shall include:

(a) Check if the Elevated Access Structure is provided and used in accordance with the Method Statement, Safety Plan and its design;

(b) Check items include:

(i) The structural condition of the Elevated Access Structure and of any deterioration, defect, damage or settlement;

(ii) Safety facilities including those for fall prevention are intact and fully operational; and

(iii) All other requirements of this Section are still being complied with.

(4) The Contractor shall carry out all necessary remedial and repair work necessary to rectify any deterioration, defect or damage and shall if necessary stop the use of the Elevated

Access Structure until such work has been properly completed, re-inspected and re-certified as safe for use by the HSO.

6.7 TEMPORARY ELECTRICAL INSTALLATIONS

6.7.1 General

(1) This Section contains safety requirements for the provision, use, relocation, repair and removal of temporary electrical power and lighting installations at the Site.

(2) Although the work in this Section is temporary, it shall be particularly noted that temporary electrical installations shall be designed, installed, inspected, tested, altered and removed by Contractor's Personnel that are qualified electricians, trained and certified for such operations in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*] and that follow strict procedures prepared by the Contractor and specified in the Method Statement and Safety Plan.

(3) The Contractor shall take precautions against the risk of death or injury from electricity during construction work. In particular, when executing refurbishment work in existing buildings where greater risk exists, the Contractor shall locate and indicate the types, positions and routes of all underground and concealed services with clearly visibly markings on ground, floor, wall and ceiling surfaces, and take all actions necessary to ensure construction safety in compliance with JSSS 3.1.2 [*Preparation and Work Planning*].

(4) The temporary electrical installations and all equipment used shall be safe, regularly inspected and properly maintained.

(5) Temporary electrical installations shall be removed immediately upon completion of the work for which they are used.

6.7.2 Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for Temporary Electrical Installations complying with OSHA 1926.405 [Wiring methods, components and equipment for general use].

6.7.3 General Safety Requirements

The Contractor shall avoid accidents to workers engaged on electrical works and also those workers who are not electricians but who are carrying out other works, by taking appropriate measures including the following:

(1) Understanding the system

(a) The Contractor shall ensure that Contractor's Personnel responsible for planning, managing or performing any part of the Works fully understand the danger in relation to electrical system on the Site or inside any existing building where any work is to be carried out, to ensure that the integrity of the electrical system is not compromised and all workers remain safe; and

(b) The Contractor shall ensure that relevant parts of existing electrical systems are isolated if the execution of any part of the Works may disturb or damage the existing electrical system and expose persons to electrical danger.

(2) Portable electrical equipment

(a) The Contractor shall ensure that tools, plugs and cables designed for domestic use are not used for construction works unless authorised by the HSO;

(b) The Contractor shall use cordless tools or other tools suitable for the Site conditions;

(c) Where cordless tools are not used, as a first preference the Contractor shall use cord and plug connected tools on a low voltage supply system with a maximum voltage to ground not exceeding 50V subject to the supply system at the Site;

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(d) Where cordless tools or cord and plug connected tools with power supplies as described in (c) above are not available then, subject to authorisation by the HSO, the Contractor shall select cord and plug connected tools which are operated as stipulated below:

Under any of the following conditions, exposed non-current carrying metal parts of cord and plug connected tools shall be grounded:

(i) If in a hazardous (classified) location stipulated in OSHA 1926.407 [Hazardous (classified) locations];

(ii) If operated at over 150V to ground, except for guarded motors and metal frames of electrically heated appliances if the appliance frames are permanently and effectively insulated from ground;

(iii) If the equipment is one (1) of the types listed below:

- Hand held motor-operated tools;
- Cord and plug connected equipment used in damp or wet locations or by workers standing on the ground or on metal floors or working inside of metal tanks or boilers;
- Portable and mobile X-ray and associated equipment;
- Tools likely to be used in wet and/or conductive locations; and
- Portable hand lamps.

(3) GFCI (also referred to as RCD)

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(a) Ensure that equipment, tools, leads, wires or cables are free of defect or damage, in particular when mains power supply is used;

(b) Use GFCI or RCD to detect any faults in the electrical system and rapidly switch off the supply; and

(c) GFCI or RCD shall be properly installed and enclosed; properly checked; treated with care; kept free of moisture and dirt; and protected against vibration and mechanical damage.

(4) Lighting systems

Protect cabling and bulbs against breakage. If a bulb breaks, the exposed filament may present a hazard. Have a system for checking bulbs regularly to maintain electrical safety and to keep the site well lit.

(5) Temporary electrical systems shall not be used in excess of intended loads or rated capacity whichever is less.

(6) Temporary electrical systems shall not be used for any purpose other than the intended original purpose.

(7) Regularly inspect power tools and take them out of service if they are damaged. Tools should be serviced by qualified electricians; makeshift repairs are prohibited.

6.7.4 Method Statement for Temporary Electrical Installations

The Method Statement for temporary electrical installations (required by the Contract and JSSS 1.9 [*Contractor's Method Statements*] shall refer to the Laws of the Country and the relevant authority which supplies power to the Contractor in relation with relevant temporary electrical installations and shall show:

(1) Required Standards and voltages of electric wires and cables.

(2) Protective work for electric wires and cables.

(3) Electric diagram.

6.7.5 Responsible Personnel

(1) The Contractor shall post the name and contact information for the person in charge of managing and operating the temporary electrical installation.

(2) All other persons shall be prohibited from operating repairing or interfering with the temporary electrical installation unless otherwise instructed or approved by the HSO or person in change.

6.7.6 Inspection, Maintenance and Repair

The Contractor shall inspect the temporary electric facilities and perform all requisite maintenance, replacement and repair to ensure the continued and safe operation including the following:

(1) Daily inspection

(a) Prepare a daily inspection checklist of the temporary electric installations including the condition of associated buildings, enclosures, fences and the like;

(b) Inspect daily; and

(c) Record the inspection results.

(2) Periodical inspection

(a) Prepare periodical (weekly and monthly) inspection checklist including measurement of insulation resistance values of temporary electric installations and the operating status of protective devices against overcurrent, grounding fault, etc.;

(b) Inspect periodically; and

(c) Record the inspection results.

(3) Maintenance and repair

(a) As a result of inspection, carry any maintenance, repair or replacement if and as necessary;

(b) Stop operation of the temporary electric installations or affected parts thereof and prevent any further operation until maintenance, repair or replacement is completed; and

(c) Reinspect, the temporary electric installations or parts thereof, and after the HSO has declared same as safe for use, operation can then re-commence.

6.7.7 Safety Measures During the Work

The Contractor shall take the following safety measures when installing, moving, removing, repairing temporary electric facilities.

(1) Cabling/Wiring

(a) Carry out cabling/wiring work so that safety distances between cabling/wiring and any other cabling/wiring, posts, gantries, other structures, buildings, enclosures Contractor's Equipment, vehicles and persons are maintained;

(b) If appropriate separation distances cannot be maintained, enclose cabling/wiring in insulated ducts, conduit or trunking;

(c) Locate cabling/wiring where it does not obstruct other works; and

(d) Always enclose cabling/wiring in insulated ducts, conduit or trunking in working areas or Operational Areas to avoid any risk of contact, damage or injury.

(2) Switchgear, Panels and Switches

(a) Enclose switchgear, panels and switches in waterproof and lockable metal enclosures to suit the environmental conditions, all of which shall be grounded; and

(b) Fuses and circuit breakers shall be suitable for their use and load capacity.

(3) Power Receiving Equipment and Transformers

(a) Power receiving equipment, transformers and the like, shall be located in securely fenced or enclosed and locked compounds, enclosures or buildings from which entry by unauthorised persons shall be prohibited;

(b) Any work in such areas shall be designated as Dangerous Work and the provisions of JSSS 2.1.5 [*Further Requirements for Dangerous Work*] shall be applied; and

(c) All such places shall be clearly indicated as dangerous no entry areas with clear and obvious signage.

(4) Grounding (earthing)

(a) All temporary electric installations shall be grounded for each part to prevent the risk of electric shock due to electrical leakage; and

(b) Grounding electrodes shall be highly conductive such as copper.

(5) Relocation and Repair Work

(a) Relocation and repair work to or any work in the vicinity of temporary electrical installations shall only be performed after the power supply has been turned off, isolation has been confirmed, confirmation that temporary protective casings have been installed over existing cables and no electricity is measured by electricity detection;

(b) When re-energising temporary electric installations during or after any relocation or repair work, the Contractor shall ascertain in advance that there will be no electric shock to any persons engaged in the relocation or repair work of temporary electrical installations or any work nearby; and

(c) When installation, relocation or repair work of temporary electric installations is completed, the facilities shall be operated only after testing and inspection of the installation by the HSO and after the HSO has declared same as safe for use.

6.8 ELECTRIC AND GAS WELDING AND CUTTING

6.8.1 General

(1) This Section contains safety requirements for electric and gas, welding and cutting.

(2) Electric and Gas welding and cutting work shall be designated as Dangerous Work and the provisions of JSSS 2.1.5 [*Further Requirements for Dangerous Work*] shall be applied.

(3) Electric and Gas welding and cutting work shall only be performed, inspected and tested by Contractor's Personnel that are qualified welders, trained and certified for such operations in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*] and that follow strict procedures prepared by the Contractor and specified in the Method Statement and Safety Plan.

6.8.2 Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for Electric and Gas Welding and Cutting complying with the following standards:

(1) OSHA 1926.351 [Arc welding and cutting].

(2) OSHA 1926.351 [Gas welding and cutting].

6.8.3 Electric Welding and Cutting

The Contractor shall take the following measures for the electric welding and cutting:

(1) Check measures before operation:

(a) Automatic voltage reduction device for reducing no load voltage to prevent the shock hazard, is fitted and is functioning properly;

(b) Frame of welding machine is properly grounded;

(c) The ground resistance shall be sufficiently low for the proper function of GFCI or RCD;

(d) Grounding conductor is installed properly and working;

(e) There is no damage to welding cables;

(f) There is no damage to electrode holder, insulation of ground clamp or cable connections; and

(g) Carry out all such further checks that are required by the manufacturer's official maintenance and repair manual.

If any items are found to be missing or defective, the Contractor shall prohibit use until it has been repaired or replaced and the equipment has been inspected, tested and certified as safe for use by HSO, before it can be used.

(2) Measures to be adopted during operation:

(a) Prevent stray currents by securely fixing the ground cable with a ground clamp to a suitable ground, close to the work location;

(b) Use cables of the correct type and size and never use alternatives such as tools or reinforcing bars;

(c) When not working, remove electrode from holder and turn off the welding machine;

(d) Weld only in suitable environment and climatic conditions. Stop working outdoors during rainfall and take measures to prevent the welding machine, cables and accessories from getting wet;

(e) If any worker receives an electric shock, the Contractor shall stop the work immediately, identify the cause, prohibit use of the equipment until it has been repaired or replaced and the equipment has been inspected, tested and certified as safe for use by HSO, before it can be used;

(f) Ensure that workers wear appropriate PPE including personal face protectors for welding and protective gloves as specified in JSSS 2.9 [*PPE and First Aid*]; and

(g) Instruct all workers not to look directly at the electric arc with their naked eyes.

(3) Periodical inspection of welding machines and welding equipment:

(a) Electric welding and cutting equipment shall be inspected and tested periodically in accordance with JSSS 4.2 [*Inspection, Maintenance and Repair*] and JSSS 4.3 [*Safety Requirements*] and

(b) The voltage reduction device shall be regularly inspected and tested at least once every six (6) months.

6.8.4 Gas Welding and Cutting

The Contractor shall take the following measures for gas welding and cutting:

(1) Check measures before operation:

(a) Flashback arrestor to stop flame back-up into the equipment or gas supply line is installed;

(b) There is no damage to gas cylinders, regulators, flashback arrestor, hose bands, hoses, blow pipes, tip nozzles, and other accessories and equipment;

(c) Gas cylinders, regulators and caps and other relevant accessories and equipment have been inspected periodically and certified by HSO as safe for use; and

(d) Carry out all such further checks that are required by the manufacturer's official maintenance and repair manual.

If any items are found to be missing or defective, the Contractor shall prohibit use until it has been repaired or replaced and the equipment has been inspected, tested and certified as safe for use by HSO, before it can be used.

(2) Handling of gas welding and cutting equipment

(a) Gas hoses and gas weld sets, shall not be damaged or worn to prevent gas leakage;

(b) Gas weld sets shall be turned off when not in use and shall not be left lying around;

(c) Gas pressure regulators shall not be operated during cutting or welding operation;

(d) Connections between cylinders, gas hoses and gas weld sets shall be securely tightened with appropriate connectors;

(e) When tip nozzle overheats, flashback is likely to occur, therefore interrupt continuous working, from time to time and cool the nozzle by submerging in water whilst discharging oxygen at low pressure; and

(f) When finishing or interrupting work, completely close the container valves and vent gas in regulators.

(3) Handling of gas cylinders

Workers shall be trained to handle gas cylinders so that they are aware of the following requirements:

(a) Not to place gas cylinders:

(i) Where there is insufficient ventilation;

(ii) Near to fires, flames, heat sources, electrical sparks or grinding sparks; and

(iii) Near to Dangerous Goods or Hazardous Substances or near to Hazardous Areas.

(b) Handle gas cylinders with care and do not drop, throw or mishandle;

(c) Keep cylinders cool by shading and do not expose to direct sunlight;

(d) Keep cylinders standing during storage and use;

(e) Seal cylinders when transporting;

(f) Place compressed gas cylinders upright at all times except while cylinders are actually being hoisted or carried;

(g) Not to place gas cylinders in the vicinity of lightning conductors or grounding rods for electrical equipment;

(h) Mark all gas cylinders as either full or empty and separate them from each other in storage and during use; and

(i) When there is a risk of freezing, do not place gas cylinders in wet or humid places. When valves of cylinder or regulating valves freeze, thaw them out with hot water, do not flame or direct fire.

(4) Safety measures for gas welding and cutting work:

(a) Ensure that all internal and external working areas are fully ventilated;

(b) When checking for gas leakage from the gas welding or cutting equipment, use a liquid detergent or similar, never use flames or fire;

(c) Provide adequate fire extinguishing equipment near the working place, always maintained and certified, suitably labelled, available and positioned so that it can be used immediately when necessary;

(d) Remove oil and dust adhering to the valve of gas cylinders;

(e) Ignition and digestion shall be accomplished only with oxygen supply valve closed;

(f) Ensure that workers wear appropriate PPE including personal face protectors for welding and protective gloves as specified in JSSS 2.9 [*PPE and First Aid*]; and

(g) Instruct all workers not to look directly at the weld with their naked eyes.

(5) Periodical inspection of gas welding and cutting equipment.

Gas welding and cutting equipment shall be inspected and tested periodically in accordance with JSSS 4.2 [*Inspection, Maintenance and Repair*] and JSSS 4.3 [*Safety Requirements*].

6.8.5 Fire Prevention

The Contractor shall take all necessary measures to prevent fires caused by welding and cutting works, including:

(1) When welding or cutting work is carried out on/in containers previously filled with Dangerous Goods or Hazardous Material, the containers shall be thoroughly cleaned so that they are completely free from such Dangerous Goods or Hazardous Material before starting work.

(2) When welding or cutting work is carried out at a place where there is a risk of causing fire either to adjacent buildings or to Contractor's Equipment, Goods, debris, waste or other materials, then fire prevention measures shall be adopted. This may include moving all such Contractor's Equipment, Goods, debris, waste or other materials, from the

working area and taking other protective measures.

(3) Welding or cutting work shall not be conducted near Dangerous Goods or Hazardous Substances or in or near to Hazardous Areas.

(4) A sufficient number of fire extinguishers of appropriate types shall be provided, near the working place, always maintained and certified, suitably labelled, available and positioned so that they can be used immediately when necessary.

(5) Spotter(s) shall be provided at areas where welding or cutting work is taking place when there is risk of fire by the heat transmitted or sparks of welding or cutting, getting into walls, floors, ceilings and the like.

(6) When welding, cutting, or heating work is performed on walls, floors, and ceilings, since direct penetration of sparks or heat transfer may introduce a fire hazard to an adjacent area, the same precautions mentioned in this JSSS 6.8.5 shall be taken on the opposite side as are taken on the side on which the welding work is being performed.

CHAPTER 7: EXCAVATION WORKS

7.1 GENERAL

7.1.1 Scope

(1) This Chapter specifies the safety requirements for excavation works which include:

(a) Open-cut and all other types of surface excavation;

(b) Pits, trenches, basements and all other types of structural excavation;

(c) Excavation using all methods such as manual excavation and machine excavation;

(d) Excavation by Blasting (hereinafter referred to as "Blasting Works");

(e) All associated embankment filling, backfilling and disposal; and

(f) Earthwork Support.

and which are hereinafter collectively referred to as "Excavation Works".

(2) General requirements for example for Contractor's Equipment, Temporary Works and other related works all which apply to the work in this Chapter, are included in other Chapters of JSSS.

Additional particular requirements are contained in this Chapter.

7.1.2 Monitoring of Excavation Works and Surroundings

(1) The Contractor shall monitor the Excavation Works and surroundings, to demonstrate that the Excavation Works are performing safely, to the designed limits and for the intended purpose.

(2) For more details, refer to JSSS 2.1.7 [*Monitoring and Records*].

7.2 PARTICULAR SAFETY MEASURES

7.2.1 General

(1) The Contractor shall plan all Excavation Works so that they can be executed in a safe and methodical manner.

(2) Unless otherwise specified in the Particular Safety Specification, the Contractor shall be responsible for choosing manual or machine excavation, selecting types of Contractor's Equipment, types of Temporary Works, Earthwork Support, spoil removal, storage and handling, controlling ground and surface water, forming embankments and cuttings and the like.

(3) Sloping sides and benching to sides of excavations shall comply with OSHA 1926.652 [Requirements for protective systems, (b) Design of sloping and benching systems], dependant on the dimensional constraints of the Site and the nature of the soil, hydraulic and geological conditions.

(4) The Contractor shall be responsible for preserving the structural integrity of all excavated sides and shall provide whatever Earthwork Support may be necessary to achieve this, in accordance with the requirements of JSSS 6.2 [*Earthwork Support*].

コメントの追加 **[SS65]:** No. 64

(5) The Contractor shall execute all Excavation Works and associated filling, backfilling and Earthwork Support without weakening any ground or causing any damage to Other Properties.

The Contractor shall also ensure the safety of all persons, whilst they are working in, under or adjacent to any excavation on or outside the Site.

The Contractor shall take all necessary measures to prevent the occurrence of any such weakening or damage to Other Properties and obtain the prior consent of the Engineer to

such measures before commencing relevant parts of the Excavation Works.

(6) If loose rock, boulders, trees and the like, are positioned above working areas and where there is any risk that these may pose a danger to workers, the HSO shall prohibit workers from entering the working areas and issue appropriate instructions including for example to:

(a) Provide protective overhead safety barriers or safety nets;

(b) Carefully remove loose rocks; and

(c) Provide (or improve existing) Earthwork Support to unstable areas.

コメントの追加 **[SS66]:** No. 65

7.2.2 Safety Measures Before Commencing Excavation Works

(1) The HSO shall inspect the Excavation Works area and surrounding areas before starting work each day and after adverse climatic conditions or earthquake as described in JSSS: 2.7 [*Adverse Weather Requirements*]. The inspection shall include the following areas and items:

(a) Potentially unsafe areas where there may be any risk of landslide;

(b) Loose rock or boulders which may be at risk of falling;

(c) Cracks in the Excavation Works area and the surrounding area;

(d) Changes in ground water level, surface or any spring water; and

(e) Deleterious effect due to freezing conditions.

(2) As a consequence of such inspections if the HSO identifies any outstanding risks, the HSO shall prohibit the continuation of any affected work, take necessary corrective measures and make any necessary amendment to the Safety Plan and instruct all Contractor's Personnel associated with such affected work of any revised safety measures before work is allowed to commence and continue in order to ensure their continued safety.

(3) Install facilities such as stairs and ramps as means of access or egress from the excavation site in accordance with JSSS 6.4.3 [*Vertical Access*].

(4) Provide support or protection for the underground services appropriately in accordance with JSSS 3 [*Existing Underground, Concealed and Overhead Services*], and take measures, according to the situation, such as indicating clearly the location and precautions of the underground service and providing protective fences for the services.

(5) Prevent workers and construction equipment/transport vehicles from falling at the excavation site, in accordance with JSSS 2.3 [*Prohibition of Entry*], install all necessary entry prevention facilities including fences, temporary enclosures, warning flags, "no entry" signs and the like and placing Spotters.

(6) Take the following measures when there is a risk of danger to third parties, workers, construction equipment, etc. by the fall of excavated soil/rock into the lower parts (bottom) of the excavation site:

(a) Identify dangerous locations, install entry prevention facilities such as fences, temporary enclosures, warning signs, etc. in accordance with JSSS 2.3 [*Prohibition of Entry*]; and

(b) Install protective fences that can catch falling rocks, etc.

(7) Preventive measures against falling rocks

(a) To protect workers from the dangers of falling of loose rocks and soils from the excavated surface, remove the loose rocks, etc. and take appropriate protective measures; and

(b) When there is a risk of falling of loose rocks/soils due to the excavation, take measures such as provision of earth retaining and protective net beforehand, and prohibiting workers from entering in the excavation site.

7.2.3 Safety Measures During Excavation Works

During the Excavation Works, the Contractor shall:

(1) Not place spoil, filling or Contractor's Equipment near the vertical edge of excavated surfaces.

(2) Stop the Excavation Works where a sign of ground collapse is identified during excavation, evacuate all Contractor's Personnel, implement all necessary safety measures, prohibit Contractor's Personnel from recommencing work until all safety measures have been taken.

(3) Backfill any temporary excavation area as soon as possible after the relevant work is completed.

(4) For places where open Excavation Works are performed, maintain the necessary illuminance to perform the work safely.

7.3 MANUAL EXCAVATION WORKS

7.3.1 General

During manual Excavation Works, the Contractor shall:

(1) Not undermine any excavation under and beyond the vertical cutting face.

(2) Not excavate under existing foundations.

(3) Maintain sufficient distance between workers.

(4) When breaking or removing loose rock, pay attention to the stability of the rock and the direction of its fall.

(5) When using a lever for removing rock, select equipment that has appropriate length and strength for the work.

7.4 MECHANICAL EXCAVATION WORKS

Refer to JSSS 4 [*Contractor's Equipment*].

7.5 TRENCHES, PITS AND OTHER TYPES OF STRUCTURAL EXCAVATION

7.5.1 General

The Contractor shall provide Earthwork Support in accordance with JSSS 6.2 [*Earthwork Support*] to prevent any danger to workers due to the collapse of excavated surfaces during the excavation of trenches, pits and other types of structural excavation.

7.5.2 Safety Measures During Structural Excavation

(1) Materials and equipment to be used for Earthwork Support shall be appropriate for the width and depth of the excavation and free from damage or defects that might impair their proper function.

(2) Workers shall not be allowed to enter any excavation until Earthwork Support is installed prior to the work commencing.

(3) Excavation to a level greater than 60cm below the planned bottom level of support when the Earthwork Support itself is not yet installed shall not be allowed.

(4) If temporary removal of individual members of the Earthwork Support is necessary, safety measures shall be taken to ensure the safety of workers, such as installing temporary members to hold the loads imposed on the system.

(5) When removing Earthwork Support, the Contractor shall not allow anyone other than the workers engaged in the removal work to enter the area and the vicinity.

(6) The Contractor shall perform backfilling of any excavation in parallel with the removal of the Earthwork Support.

7.6 BLASTING WORKS

7.6.1 Scope

(1) This Section specifies safety measures for Blasting Works generally for the removal of rock that cannot be undertaken using conventional excavation techniques.

(2) Blasting Works for tunnelling is not included in the scope of this Chapter.

7.6.2 General Blasting Requirements

(1) Blasting shall only be permitted to be performed by the Contractor:

(a) When it is safe to do so and when there is no reasonably identifiable risk of injury or damage being caused to persons or property within or outside the Site;

(b) Where it is not specifically prohibited by the Particular Safety Specification; and

(c) When the Contractor has received the Engineer's approval or instruction.

(2) Blasting when approved, shall only be permitted at times which have been predetermined and agreed with the Engineer and any relevant authority.

(3) The Blasting Works plan shall be described in the relevant Method Statement.

(4) This Section applies particularly where there may be any risk of injury or damage to persons and property from flying debris within or outside the Site.

7.6.3 Blasting Noise

Noise levels measured at the boundary of the Site shall not exceed a sound pressure level of 85 dBA and/or a peak sound pressure level of 110 dB.

Noise from blasting in the Site shall be controlled in accordance with JSSS 2.1.4 [*Noise*].

コメントの追加 **[SS67]:** No. 66

7.6.4 Compliance Standards

(1) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for Blasting Works complying with BS 5607: Code of Practice for the Safe Use of Explosives in the Construction Industry.

(2) The Contractor shall obtain the necessary permits, licenses or approvals for Blasting Works and the handling and storage of Explosives associated therewith. The Employer, at the request of the Contractor, shall provide such reasonable assistance to allow the Contractor to obtain properly such permits, licenses or approvals.

7.6.5 Personnel for Blasting Works

(1) Further to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*], the Contractor shall assign the following personnel for Blasting Works:

(a) Explosives engineer; and

(b) Shotfirer(s).

(2) Responsibilities and requirement of personnel for Blasting Works.

(a) The Explosives engineer shall plan the Blasting Works, lead the Blasting Works at the Site and perform the safety management of the Blasting Works; and

(b) Shotfirer(s) shall perform safe handling, transportation and storage of Explosives, and perform Blasting Works and site safety management.

(3) Safety education and guidance

Further to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*], the Contractor shall ensure that the Explosives engineer and shotfirer(s) have sufficient knowledge of and are able to comply with the following:

(a) Nature of hazards associated with Blasting;

(b) Unsafe conditions and conduct in performing Blasting Works;

(c) Procedures for Blasting Works;

(d) Evacuation and return procedures for any evacuated workers and personnel;

(e) Safety measures when misfiring of Explosives occurs; and

(f) Actions for Emergency Response.

7.6.6 Blasting Safety Plan

The Contractor shall prepare a Blasting Safety Plan describing all required safety measures for Blasting Works in addition to the items prescribed in JSSS 1.7 [*Contractor's Safety Plans*] and including the following:

(1) Risk analysis and countermeasures.

(2) Safety measures for transportation, safekeeping, use and disposal of Explosives.

(3) Safety measures for Contractor's Personnel, Employer's Personnel and any other persons, the general public, neighbouring residents and building owners on or adjacent to the Site and who may be affected by the Blasting Works (hereinafter collectively referred to as "persons affected by the Blasting Works" in this Section).

(4) Determination of Exclusion Zone.

(5) Identification of affected areas, buildings, structures and property.

(6) Environmental and health compliance requirements including vibration, noise, fire, and the like.

コメントの追加 **[SS68]:** No. 67

(7) Environmental monitoring plan and methods to record the impact of Blasting on affected buildings, structures and property.

(8) Trial Blasting.

(9) Identification of the Explosives engineer and shotfirers to distinguish from other workers.

(10) Placement of Spotters.

(11) Method of notification of the start date and time of Blasting Works and the serving of notice immediately before commencement of Blasting Works to other persons affected by the Blasting Works.

(12) Evacuation method of all personnel from the Exclusion Zone before Blasting.

(13) Warning system at the time of Blasting.

(14) Procedures and methods for dealing with misfired Explosives (The plan for the treatment procedures for misfired Explosives shall be prepared by reference to BS 5607: Clause 10.5 Misfires).

(15) List of legal and administrative records.

7.6.7 Risk Prevention of Workers and Neighbouring Residents

(1) Notice of Blasting

The Contractor shall notify all persons affected by the Blasting Works. of the planned schedule and start dates and times for Blasting Works. Such information shall be updated as necessary, immediately before the Blasting Works commence.

(2) Risk Prevention Measures

The Contractor shall take all necessary measures to prevent any injury or damage to all persons affected by the Blasting Works, including the following:

(a) Prohibition of overcharging with Explosives more than that specified in the Method Statement prepared based upon the trial Blasting;

(b) Prevention of scattering of flying rock and other debris;

(c) Prevention of collapse of surrounding rocks or ground areas;

(d) Demarcate the Exclusion Zone for Blasting Works and take necessary measures to prohibit any unauthorised persons from entering the Exclusion Zone by a system of signs, signals and Spotters in accordance with BS 5607: Clause 7.4.2 [Blast warning procedures] including the following:

(i) Provide audible warning sirens to warn of impending, current and completed Blasting operations; and

(ii) Place bulletin boards showing the Blasting time, siren code and other precautions at the boundary of the Dangerous Work area.

(e) Establish evacuation requirements, routes and assembly areas and inform all persons affected by the Blasting Works;

(f) Perform firing only after the Spotters have confirmed that all persons affected by the Blasting Works have been evacuated;

(g) Provide communication equipment between the shotfirer and the Spotter, maintain and test the equipment;

(h) Prohibit bringing into the Blasting areas any mobile phone that may affect adversely the electric detonator; and

(i) Unless otherwise specified in the Particular Safety Specification, perform Blasting Works only during the daytime.

7.6.8 Handling and Storage of Explosives

(1) Storage of Explosives

(a) The Explosive store to be constructed at the Site shall be a secure, substantial and fireproof building, environmentally controlled, locked, guarded and protected at all times and in accordance with the Laws of the Country;

(b) Appropriate numbers and types of personnel shall be assigned by the Contractor for safekeeping and security of the stored Explosives and any other materials;

(c) The Contractor shall maintain records of the types and quantities of all Explosives received and issued at the store, listing the date and time of receipt and issue and the names of all personnel concerned; and

(d) The Contractor shall submit the records to the Engineer when the Engineer requests.

For other storage requirements, the Contractor shall take necessary measures complying with BS 5607: Clause 9.3 [Storage].

(2) Transportation of Explosives

For transportation requirements, the Contractor shall take necessary measures complying

with BS 5607: Clause 9.4 [Transport of Explosives on Site].

(3) Quantity of Explosives at the Blasting site

(a) No Explosives shall be stored at the Blasting site;

(b) The quantity of Explosives to be transported from store to the Blasting site shall be limited to the estimated quantity of consumption for the Blasting; and

(c) Explosives not used on the day shall be returned to the Explosives store.

(4) Handling of Explosives

(a) Explosives shall be handled with extreme care ensuring that they are not hit, thrown or dropped;

(b) Containers for Explosives shall be solidly constructed from timber or non-conducting material and metals such as iron or foil must not be used on inner surfaces;

(c) Explosives and detonators shall be separately stored in lockable containers;

(d) The containers for Explosives shall protect against water ingress, impact damage; and

(e) Smoking, use of matches, lighters, flames, sparks and the like shall be prohibited in areas where Explosives are being transported, stored and handled, notice boards and warning signs shall be placed in suitable positions.

(5) Records of Blasting and Explosives

(a) The Shotfirer shall prepare daily work records showing the date and time of each Blasting operation, quantity of Explosives received, consumed, misfired and remaining, number of blast holes, charging method for the Blasting and treatment of misfired Explosives;

(b) The Explosives engineer shall check and countersign the Blasting Works records; and

(c) The Contractor shall submit the records to the Engineer when the Engineer requests.

(6) Notice to the Engineer

The Contractor shall notify the Engineer in writing as follows:

(a) Notification of delivery of Explosives to the store and from the store to the Site, shall each be given to the Engineer by no later than noon on the day preceding the scheduled date of the arrival of Explosives at the store and the delivery to the Site;

(b) Notification of intended Blasting Works shall be given to the Engineer by no later than noon on the day preceding the scheduled date of the Blasting operation; and

(c) Notification of the schedule for the following week's Blasting shall be given to the Engineer by no later than Friday morning of the preceding week.

7.6.9 Trial Blasting

The Contractor shall perform trial Blasting in accordance with the Blasting Safety Plan provided in JSSS 7.6.6 [*Blasting Safety Plan*] for the following purposes, and modify the said Blasting Safety Plan according to the results of the trial Blasting:

(1) Confirm the characteristics of rock and topography at the Blasting site that will affect the Blasting operations.

(2) Confirm the suitability of the planned Blasting method, Explosives amount, and scattering prevention and other protection measures.

(3) Confirm the safety of all persons affected by the Blasting Works.

(4) Confirm that the Contractor's criteria are adequate for the purpose of JSSS 7.6.10 [*Monitoring Impact of Blasting Works on Other Properties*].

The Contractor shall submit the trial Blasting reports with any consequent changes to the Blasting Safety Plan to the Engineer before proceeding with the Blasting Works.

7.6.10 Monitoring Impact of Blasting Works on Other Properties

The Contractor shall comply with the requirements of JSSS 7.1.2 [*Monitoring of Excavation Works and Surroundings*].

7.6.11 Particular Safety Measures for Blasting Works

(1) Identification of Blasting workers

Provide clear visible identification mark, uniforms or marked safety helmets to distinguish the Explosives engineer and shotfirer(s) engaged in Blasting Works from other workers.

(2) Drilling Work

(a) No drilling shall be allowed in the hole formed for previous Blasting; and

(b) If any misfired Explosives are found during the drilling operation, the drilling shall be stopped and the misfired Explosives shall be treated in accordance with the procedures planned in JSSS 7.6.6 [*Blasting Safety Plan*] and JSSS 7.6.12 [*Measures after Blasting*], (2) [*Treatment of misfired Explosives*].

(3) Explosives Charging

(a) Drilling operations shall not be permitted during charging of Explosives;

(b) Before charging, thoroughly clean the holes and do not leave any dust or debris; and

(c) Shock and friction such as the following, which can cause accidental initiation of the charges, shall be avoided:

(i) the over-vigorous use of stemming rods to force Explosives into a shot hole;

(ii) the use of drill rods or other metal tools in a shot hole containing Explosives;

(iii) vehicles running over Explosives and other hazards involving impact or concussion; and

For other safety measures for charging work, the Contractor shall comply with BS 5607: Clause 10 [Safety when using Explosives].

(4) Handling Detonators

(a) Measures for Blasting using electric detonators:

(i) Make sure electric detonator's leg wires shall be kept short-circuited until they are connected into the circuit for firing;

(ii) Check if shotfiring cables are not cut or damaged;

(iii) Make sure electric detonators shall be kept away from electric lighting supplies, power supplies and other electrical sources that may cause electric leakage;

(iv) Check if there are no missing or wrong wiring connections or mis-connection with previous blast wires;

(v) Make sure there are no stray electric currents;

(vi) Do not use electric detonators if there is any danger of electrical interference for example from radio-frequency radiation near radio communication facility or radar; and

(vii) Install a lightning detector near the Blasting area, stop Blasting Works when there is a risk of lightning strike, and evacuate workers to a safe place.

For other safety matters for Blasting with electric detonator, the Contractor shall comply with BS 5607: Clause 10.4.3 [*Electric detonators*].

(b) Measures for Blasting using non-electric detonators:

(i) Do not cut or damage the shock tube; and

(ii) Before firing, check the connections visually and make sure that there are no missing or previous wiring connections or wrong wiring connections.

(5) Measures in Ignition:

(a) The connection between the shotfiring apparatus and shotfiring cable shall be made just before ignition;

(b) Ignition shall be made at a safe place isolated and protected according to the degree of the blast; and

(c) The handle shall be removed from the shotfiring apparatus except when igniting.

7.6.12 Measures after Blasting

(1) Confirmation of safety of Blasting area after Blasting:

(a) No persons other than the shotfirer shall enter the Blasting site or its vicinity until the shotfirer has inspected the area and confirmed that it is safe to re-enter; and

(b) The shotfirer shall inspect the area and surrounding area of the Blasting site to check that there is no danger of falling or collapsing of ground and rocks or misfired Explosives.

(2) Treatment of misfired Explosives

If, after ignition, the loaded Explosives did not explode, or if it is difficult to confirm the explosion, the misfired Explosives shall be treated in accordance with the treatment of misfired Explosives in the Blasting Safety Plan, and BS 5607: Clause 10.5 [Misfires] including the following:

(a) Procedure of treatment of misfired Explosives;

The following treatment procedure of misfired Explosives shall be taken:

(i) Immediate remedial action;

(ii) Delayed remedial action;

(iii) Further attempt at detonation; and

(iv) Inspection to confirm complete detonation.

The details of the above actions are stipulated in succeeding (b) to (d).

(b) Immediate remedial action;

The following initial actions shall be taken by the shotfirer:

(i) Prohibit anyone other than the shotfirer and other authorised personnel from entering the Blasting site;

(ii) Entry to the Blasting site shall only be permitted after the elapsed time from the occurrence of misfire as specified in the Blasting Safety Plan;

(iii) Disconnect from the shotfiring apparatus any removable handle or key and the shotfiring cable, and short-circuit or ground the bare wires together;

(iv) When safe to do so, examine the cable and connections for any defects, and remedy any defect so found;

(v) Make a further attempt to fire the shot;

(vi) Report to the Explosives engineer for further instructions;

(vii) Do not collect any exposed Explosives before further action is taken;

(viii) Do not allow drilling or any other work to be carried out in the vicinity of the misfire until the misfire has been remedied, unless this is directly involved in the treatment of the misfire; and

(ix) Other actions specified in BS 5607: Clause 10.5.4.1 [Initial actions].

After the initial actions, the following initial remedial actions shall be taken by the shotfirer:

(i) When safe to do so, examine the cable and connections for any defects, and remedy any defect so found; and

(ii) Make a further attempt to fire the shot.

(c) Delayed remedial action and further attempt at detonation:

(i) After the immediate remedial action, when necessary, the delayed remedial action and further attempt at detonation shall be taken.

(ii) The delayed remedial action and further attempt at detonation should be safe removal of the stemming to allow re-priming, or drilling and firing relieving holes placed so as to work away the rock surrounding the stemming and charge of the misfired shot holes.

(iii) The action and attempt shall be taken in accordance with the Blasting Safety Plan, and BS 5607: Clauses 10.5.4.2 [Written instructions], 10.5.4.3 [Attempts to re-fire], 10.5.4.4 [Drilling relieving holes] and 10.5.5 [Drilling relieving holes].

(d) Inspection to confirm complete detonation;

After further attempt at detonation, inspection shall be made to confirm complete detonation. If any non or partial detonation is found, remedial measures shall be taken according to Figure-1 Procedure to remedy misfires in BS 5607: Clause 10.5.1 [General].

(e) Take appropriate steps to prevent theft of Explosives and detonators or their initiation by an unauthorised person; and

(f) The Contractor shall promptly notify the Engineer of any misfire event and the remedial actions.

CHAPTER 8: FOUNDATION PILING WORKS

8.1 GENERAL

8.1.1 Scope

(1) This Chapter specifies the safety requirements for piling works which include:

(a) Driven Piling;

(b) Cast-in-place Piling; and

(c) Hand-dug Piling

and which are hereinafter collectively referred to as "Foundation Piling Works".

(2) General requirements for Contractor's Equipment, Temporary Works and other related works all which apply to the work in this Chapter, are included in other Chapters of JSSS.

Additional particular requirements are contained in this Chapter.

8.2 PARTICULAR SAFETY MEASURES

8.2.1 General

(1) Foundation Piling Works and all operations connected therewith shall be designated as Dangerous Work and the Contractor shall enclose the working area with temporary fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry*].

(2) Unless otherwise specified in the Contract, the Contractor shall be responsible for selecting methods of working and types of Contractor's Equipment and Temporary Works suitable for the purpose in conformity with GC 4.10 [*Site Data*].

(3) In accordance with JSSS 6.2 [*Earthwork Support*] the Contractor shall be responsible for maintaining the structural integrity of the sides of all excavated or drilled pile excavations and shall provide whatever temporary or permanent Earthwork Support that may be necessary to achieve this.

(4) The Contractor shall execute all Piling Works without weakening any ground or causing any damage to Other Properties.

(5) The Contractor shall also ensure the safety of all persons, whilst they are working in, under or adjacent to any piling excavation on or outside the Site.

(6) The Contractor shall take all necessary measures to prevent the occurrence of any such weakening or damage to Other Properties and obtain the prior consent of the Engineer to such measures before commencing relevant parts of the Foundation Piling Works.

Such measures shall include the provision of permanent or temporary supports and reinforcing of foundations, structures, buildings, roads or paved areas or the like, either on or adjacent to the Site.

8.2.2 Safety Measures Before Commencement

The Contractor shall plan all Foundation Piling Works before commencement so that they are executed in a safe and methodical manner. The safety measures before commencement of the Works shall be as follows:

(1) The HSO shall inspect the Foundation Piling Works' working area and surrounding areas and ensure that all of the following is acceptable before allowing the Foundation Piling Works to commence:

(a) The ground is level and capable of supporting the loading of the Contractor's Equipment including any dynamic effect of the Foundation Piling Works and the load of any materials to be placed thereon;

(b) The area is clear of any obstructions; and

(c) The areas are properly drained and free from standing water.

If necessary, the Contractor shall improve the ground by stabilising, cleaning, draining, providing paving and/or placing steel decking and temporary piling and the like to provide a suitable, clean, dry and safe working area without causing any risk to the stability of Contractor's Equipment or materials.

8.2.3 Safety Measures for Transportation on Site - Appropriate Equipment and Vehicle

Piles and pile casings, liners, reinforcement cages and the like shall not be transported or relocated by use of pile driving or drilling machines. In all cases the Contractor shall use cranes accompanied or where necessary, trucks and flatbed trailers for the transportation or relocation.

8.2.4 Safety Measures for Driven Piling

The Contractor shall:

(1) Select correct rigging method and appropriate Rigging Equipment to suit the characteristics of the lifting or pile driving machine and the piles, so that piles are mishandled or dropped.

(2) Keep workers other than those directly engaged in the driving operations away from the direct working location when driving operations are taking place.

(3) Provide a lifeline to fix PFAS on the lead when the worker works on the lead of pile driving machine in addition to the fall prevention measures stipulated in JSSS 2.5 [*Fall Prevention*].

8.2.5 Safety Measures for Cast-in-place Piling

When any Cast-in-place Piling Works are adopted, the Contractor shall take appropriate safety measures taking account of features of different methods of work, in particular:

(1) Pile Excavation Works using All-Casing Piling Method:

(a) Keep workers other than those directly engaged in the piling operations away from the pile excavation machine while installing and removing the casing and operating the drop hammer grab. Before any worker is allowed to access the casing or equipment whilst the hammer grab is being operated, ensure that the hammer grab is secured in the casing; and

(b) When any worker needs to enter the casing, confirm that there is no danger in accordance with JSSS 2.1.5 [*Further Requirements for Dangerous Work*].

(2) Pile Excavation Works for Reverse Circulation Bored Piling Method:

(a) When adding or removing drill rods, ensure that a Spotter is present to signal the operator of the drilling machine so that the hands and fingers of workers do not get caught in the work;

(b) Maintain the water level and concentration level of slurry (bentonite solution) in the drilled hole as planned in the Method Statement and prepare for addition or discharge of slurry, consequent to any fluctuation; and

(c) When providing a mud creation pit or a mud discharge pit, take measures to prevent workers from falling into such pits by providing barriers and signage.

(3) Pile Excavation Works for Auger Piling Method:

(a) To prevent overturn of drilling or auger equipment, consider the weight of excavated material in the drilling bucket or on the auger during operation; and

(b) Keep workers other than those directly engaged in the drilling works, away from the drill or auger to prevent injury through splashing or falling of mud or earth or

through contact with drill or auger.

(4) Placement of Concrete

(a) Reinforcement cages shall be designed, manufactured and hoisted into place so that they do not deform;

(b) Provide secure rigging slings and welded metal fixings to ensure that reinforcement cages are secure and do not slip or drop off the Hoisting Equipment;

(c) Tremie pipes shall be treated in the same manner so that they are secure and do not slip or drop off the Hoisting Equipment;

(d) Provide secure Rigging Equipment and operate hoisting to ensure that reinforcement cages and tremie pipes do not slip or drop off from the Hoisting Equipment in accordance with the Method Statement and Safety Plan; and

(e) When handling reinforcement cages and tremie pipes, ensure that a Spotter is present to signal the operator of the machine so that the hands and fingers of workers do not get caught in the work.

8.2.6 Safety Measures for Hand-dug Piling

Unless otherwise specified in the Particular Safety Specification, the Contractor shall comply with the requirements of the following (1) to (3):

(1) Hand-dug Piling shall not be adopted by the Contractor in ground with unfavourable conditions such as:

(a) High ground water levels;

(b) Weak geological structure including the possible presence of voids or caverns;

(c) Possible existence of Hazardous Substances;

(d) Containing loose fill in depths exceeding 10 m;

(e) In areas with history of deep-seated ground movement;

(f) Close proximity to water or sewage tunnels; and

(g) Close proximity to shallow foundations.

(2) Hand-dug Piling may for example be adopted by the Contractor in the following situations where there are no unfavourable conditions:

(a) Steeply-sloping sites with pile depths less than 25 m in depth in soil;

(b) Sites with difficult access or insufficient working room where it may be impractical or unsafe to use mechanical plant; and

(c) Where noise, vibration or damage may be caused by driven or bored piling and which must be avoided.

(3) Hand-dug Piling shall:

(a) Be not less than 2 m diameter;

(b) Be not more than 25m deep; and

(c) Have continuous shaft lining.

(4) Access/Exit Facilities

The Contractor shall:

(a) Provide safe and efficient access, egress and emergency exit facilities in the shaft for workers;

(b) Provide vertical ladders, securely anchored to framework or shaft lining and complete with a ladder safety system;

(c) Provide a landing rest platform every 5 m, when the length of any ladder exceeds 10 m;

(d) Ensure that the upper end of vertical ladders projects at least 1m above the ground and any landing rest platforms;

(e) Provide appropriate and adequate pumps to remove all water from the base of the shafts; and

(f) Take measures to prevent any accidents involving workers with the spoil removal containers and any other equipment particularly throughout the bucket hoisting and descending operations.

(5) Ladder Safety System

(a) A ladder safety system shall be provided to eliminate the risk of injury to any worker falling off the ladder; and

(b) The ladder safety system shall comprise a carrier, safety sleeve, lanyard, connectors, and body harness and all workers shall be trained in its use.

(6) Communication and Signalling Measures

(a) Signals for delivering materials and equipment or discharging excavated materials to and down or from the shaft shall be determined in advance and all workers shall be trained in their use;

(b) Signals and evacuation methods during emergencies shall also be determined in advance and all workers shall be trained in their use with regular evacuation training; and

(c) Where considered necessary by the HSO handheld radios shall be provided to the Operation Leader working at the base of the shaft and a Spotter at the ground level for all communications.

(7) Environmental Measures

(a) Ensure a continuous, adequate and safe air supply to workers located at the bottom of the shaft;

(b) Provide monitoring equipment, set up alarms and evacuate workers if air quality deteriorates and keep records in accordance with JSSS 2.1. [*Work Environment*]; and

(c) Provide adequate temporary lighting.

(8) Measures before Commencing Work

Check the condition of the excavated ground surface in the shaft and whether there is any abnormality in the shaft lining.

(9) Measures during Execution of the Work

(a) When workers are in the shaft, assign a Spotter at ground level and located within direct view at the upper edge of the shaft;

(b) Minimise the depth of each stage of excavation;

(c) Avoid introducing new teams of workers or changing over teams until each stage of excavation is completed and temporary support or shaft lining has been installed;

(d) Provide immediate temporary support for the excavated faces prior to casting the

liner;

(e) Providing reinforcement to the concrete liner;

(f) Providing drainage to each stage of excavation with relief wells, sumps and pumping as appropriate;

(g) Stop the work and evacuate workers when abnormal water inflow occurs in the shaft and resume work only after taking countermeasures and confirming the safety of the Site and the effectiveness of the measures;

(h) Pay constant attention to any changes in soil types, properties, etc. and if any abnormality is identified at the excavated surface during work or in the shaft lining, immediately stop the work, evacuate workers and take appropriate remedial measures, resume the work only after confirming that there is no further risk; and

(i) Ensure nothing is dropped into the shaft that may injure workers.

8.2.7 Monitoring Impact of Foundation Piling Works on Other Properties

The Contractor shall comply with the requirements JSSS 2.1.7 [*Monitoring and Records*].

CHAPTER 9: CONCRETE WORKS

9.1 GENERAL

9.1.1 Scope

(1) This Chapter specifies the safety requirements for concrete works which include:

(a) Cast-in place (poured or pumped) concrete;

(b) Reinforcement (reinforcing bar and fabric reinforcement);

(c) Formwork (including associated Falsework);

and which are hereinafter collectively referred to as "Concrete Works".

(2) General safety requirements, covering for example Contractor's Equipment including stone crushing plants and screening equipment, concrete batching plants, Temporary Works and other related matters are described in other Chapters of JSSS.

Additional particular requirements are contained in this Chapter.

9.1.2 Safety Plan and Instructions to Workers

Prepare a Safety Plan describing the safety requirements for Concrete Works and inform all workers engaged in the Concrete Works of the content and requirements. The Safety Plan shall pay due care to the workers' health matters (e.g. back injury) in relation to handling of reinforcement, Formwork panels or other heavy items, and include necessary preventive measures (e.g. using appropriate Contractor's Equipment, assigning sufficient number of workers).

9.2 PARTICULAR SAFETY MEASURES

The following safety requirements are additional to the general requirements described in other Chapters.

9.2.1 Safety Measures at Planning Stage

(1) The Contractor shall plan all Concrete Works so that they are executed in a safe and methodical manner.

(2) The Contractor shall plan the method of placing cast-in-place concrete and carry out the design and construction of Formwork and Falsework to take account of uneven and excessive impact force and different or asymmetrical loads, thicknesses and pressures in certain areas during concrete placement to avoid deformation beyond allowable tolerances specified in the Contract, any damage or collapse of Formwork and Falsework and show all details in the Method Statement and Safety Plan.

(3) The Contractor shall provide PPE such as rubber gloves, face masks and goggles to the workers when spraying concrete form release agents to prevent chemical injury, and where there is a possibility that release agent may splash on the third parties, take measures such as establishing exclusion zone with temporary barriers and locate Spotters to prevent those persons from entering the area.

9.2.2 Safety Measures for Placement

The Contractor shall:

(1) Designate concrete placement works (including all pumping and hoisting of concrete) as Dangerous Work, enclose the immediate working area with temporary signs and fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry*].

(2) Inspect all reinforcement, Formwork and Falsework before and during concrete placement. If any abnormality is discovered, stop the placement works and evacuate the

workers immediately, carry out repairs and reinspect before resuming.

(3) Place the concrete in accordance with the Method Statement and avoid uneven and excessive impact force and different or asymmetrical thicknesses and pressures in certain areas during concrete placement Additional materials shall be stored at the concrete placing site for use to reinforce Falsework in case of occurrence of their local deformation.

9.2.3 Safety Measures for Placement by Pumping

The Contractor shall take the following safety measures for delivery of cast-in-place concrete with the use of concrete pumps:

(1) Inspect the condition of concrete pump delivery pipes, end hoses and all connections, ensure that they are free from defects and blockage, check that all joints and connections are secure and free from leakage before and during concrete placement works.

(2) Ensure that all delivery pipes, end hoses and other system components are all correctly pressure rated and capable of withstanding the maximum pump pressure.

(3) Maintain a safe separation distance between the delivery pipe, end hose and boom and any existing Overhead Services as required by JSSS 3 [*Existing Underground, Concealed and Overhead Services*], Table 3.2.1: Safe Separation Distances.

(4) Maintain a safe separation distance from any obstructions (Contractor's Equipment, buildings, etc.) and avoid any risk of hitting or touching any obstructions with the pumping equipment, delivery pipes, end hoses or boom.

(5) Check the ground condition, ensure a firm, stable and horizontal working base at all times and position pumping equipment and ready-mixed concrete trucks at a safe distance from the edge of any excavations, drop or slope to protect against any slippage or fall of equipment and ready-mixed concrete trucks or collapse of ground.

(6) Fully extend outriggers and ensure stability of pumping equipment and ready-mixed concrete trucks at all times.

(7) Arrange proper communications and signals before starting the placement between workers, Spotters and operators of equipment and ready-mixed concrete trucks and ensure there is a Spotter at the point of placement.

(8) Never allow workers to stand between ready-mixed concrete trucks and pumps when ready-mixed concrete trucks are reversing.

(9) Ensure that workers are out of the path of the boom when moving the boom.

(10) If a blockage or clogging occurs inside the pipeline during the pour, stop pumping immediately and instruct workers to move to a safe position before attempting to remove the blockage or clogging. The pipeline shall be opened after releasing the pressure inside in accordance with the predetermined procedure.

(11) Ensure that hoppers and chutes are securely fixed and that workers are aware of the method of operation and safe use.

(12) Ensure that the delivery pipe and hose at the end of the concreting pump booms are securely connected so that they do not fall or become detached.

(13) Prohibit workers from working on the hopper screen of the concrete pump, remove obstructions and foreign materials in the hopper only after stopping the agitating blade and applying lockout/tagout procedures.

(14) Prohibit workers from entering in front of and below the outlet of concrete pump delivery pipes and end hoses to prevent workers being struck by pipes or flailing hoses.

9.2.4 Safety Measures for Ready-Mixed Concrete Trucks

The Contractor shall take the following measures for the ready-mixed concrete trucks in the transportation and delivery of cast-in-place concrete.

(1) Ensure that drivers are aware of and take due account of the heavy load and high centre of gravity of loaded ready-mixed concrete trucks during delivery and discharge to maintain safety and prevent overturning.

(2) Ensure that workers do not come into contact with and/or become entangled with the rotating drum and other moving parts of ready-mixed concrete trucks and that they are prevented from looking into the drum.

9.2.5 Safety Measures for Use of Concrete Buckets

The Contractor shall take the following measures when using concrete buckets for hoisting and placement of cast-in-place concrete:

(1) Comply with JSSS 5.2.5 [*General Safety Measures for Hoisting Operations*] for selection of proper Hoisting Equipment and Rigging Equipment, arrangement of proper communication tools, signals and placement of Spotters.

(2) Ensure that the movable gate is locked before hoisting and is only operated by a skilled worker when it is opened for discharge.

(3) Take measures to stabilise the bucket during hoisting and prevent any uncontrolled swinging. Prohibit workers from pushing and pulling bracket except for minor adjustment of location of the bucket for discharging concrete.

(4) Prevent any persons or workers from entering the places below bucket.

(5) Discharge the concrete slowly and in a controlled manner to prevent the bucket from rebounding after discharge.

9.2.6 Safety Measures for Use of Concrete Vibrators

The Contractor shall take the following measures when using concrete vibrators for compacting of cast-in-place concrete:

(1) Take all necessary measures to prevent electric shock, complying with JSSS 4.3.12 [*Additional Requirements for Electric Powered Equipment*].

(2) To prevent vibration injury to workers, provide anti-vibration gloves and ensure that they are properly used.

9.3 REINFORCEMENT

9.3.1 Safety Measures at Planning Stage

The Contractor shall:

(1) Prepare a Safety Plan, Method Statement and fixing and placing drawings of reinforcement describing the method of cutting, bending and fixing and showing the types and positioning of supports, ties and bracing necessary to support and rigidly secure the reinforcement and to prevent any movement or collapse.

(2) Inform all relevant workers of the content of the Safety Plan, Method Statement and assembly drawings.

9.3.2 Safety Measures at Cutting, Bending, Transporting, Fixing and Placing Stage

The Contractor shall take the following measures during cutting, bending, transporting, fixing and placing of reinforcement:

(1) Cutting and Bending:

(a) Designate the work as Dangerous Work, enclose the immediate working area with

temporary signs and fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry*];

(b) Maintain the working area in a safe, organised, uncluttered and clean condition at all times, avoid excessive storage by retaining sufficient quantities of reinforcement for immediate use, locate equipment in known positions, prevent any fall or dropping of material, equipment and tools, remove offcuts to a separate area and ensure the area is safe and that the risk of workers falling or tripping is avoided; and

(c) Maintain stored reinforcement material in a safe and secure manner and prevent collapse or fall by providing adequate restraints.

(2) Transporting:

(a) Ensure that Scaffolding and any other temporary structures on which reinforcement is to be temporarily placed is capable of supporting the load, ensure that the load is distributed safely and that it does not cause any obstruction to the passage of other workers;

(b) Ensure that reinforcing bar is lifted and suspended horizontally to prevent any slippage during Hoisting Operations and also that it is bundled safely and securely tied to prevent any reinforcing bars from sliding out;

In principle, hoist the bundle of reinforcing bars, keeping them horizontal and maintaining the balance by using two rigging slings; and

(c) When transporting to the working location use flatbed trailers or truck, ensure that the trailer or truck is of sufficient length to avoid any overhang of reinforcing bars and provide appropriate warning signs and lighting on reinforcing bars if necessary in accordance with the local regulations to avoid collision with other vehicles, persons and workers.

(3) Fixing and Placing:

(a) Prepare proper temporary access to and support for fixing and placing reinforcement in position;

(b) Prevent any risk of fall and also any distortion or weakening of reinforcement by prohibiting workers from standing, walking or climbing on such reinforcement and where necessary provide safe temporary boarded walkways for workers use;

(c) Ensure that fixing and placing is in exact accordance with the fixing and placing drawings and that the correct types and positioning of supports, ties and bracing is maintained to properly support and rigidly secure the reinforcement and prevent undue movement or collapse;

(d) When there is any danger of reinforcement falling or collapsing during fixing and placing in wind and rain, stop the fixing and placing work. After conditions improve, inspect the reinforcement and take measures to correct any abnormality before continuing with fixing and placing;

(e) Prohibit working concurrently at levels where any other worker is working underneath in accordance with JSSS 2.6.7 [*Working Above or Below Other Persons*]; and

(f) Provide temporary protection caps to exposed ends of reinforcing bars to prevent injury to workers.

9.4 FORMWORK (INCLUDING FALSEWORK)

9.4.1 General

Any reference to "Formwork" in this Section shall also be deemed to include reference to the associated Falsework for that Formwork.

9.4.2 Safety Measures at Planning Stage

The Contractor shall:

(1) Design the Formwork and manage its provision, use and removal in accordance with JSSS 1.37 [*Design and Management of Temporary Works*] and the further requirements of JSSS 6.1 [*General Requirements of Temporary Works*].

(2) Prepare a Safety Plan, Method Statement and design drawings of Formwork describing the method of fabrication, assembly, erection and removal and showing details of all materials, components, types and positioning of supports, ties and bracing necessary to create a rigid and secure temporary support structure for the concrete, reinforcement and workers and to prevent any movement or collapse.

(3) Inform all relevant workers of the content of the Safety Plan, Method Statement and design drawings.

9.4.3 Safety Measures at Fabrication and Assembly Stage

The Contractor shall take the following measures during fabricating, transporting and assembling of Formwork:

(1) Designate the work as Dangerous Work, enclose the immediate working area with temporary signs and fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry*].

(2) Maintain the working area and storage area in a safe, organised, uncluttered and clean condition at all times, avoid excessive storage by retaining sufficient quantities of material for immediate use, locate equipment in predetermined places, prevent any fall or dropping of material, equipment and tools, remove offcuts to a designated area.

(3) Ensure that the Formwork is free from cracks, defects and deformation.

(4) Ensure that Scaffolding and any other temporary structures on which Formwork is to be temporarily placed is capable of supporting the load, that the load is distributed evenly and within the allowable stress of Formwork.

(5) During any Hoisting Operations, ensure that all necessary measures are taken to prevent Formwork being affected by wind and that any risk of collision and consequent injury and damage is avoided.

9.4.4 Safety Measures During Dismantling and Removal Stage

(1) Ensure that Formwork is only dismantled when so instructed or approved in writing by the HSO.

(2) After dismantling, stack Formwork panels horizontally to avoid overturning due to strong wind or applied loadings; and

(3) Any protruding nails, wires, projecting members and splinters shall be removed or bent flat to avoid injury to workers and other persons.

CHAPTER 10: DIVING WORKS

10.1 GENERAL

10.1.1 Scope

This Chapter specifies the safety requirements for Diving Operations which shall include Surface-Supplied Air Diving and SCUBA Diving and which are hereinafter collectively referred to as “Diving Works”.

Saturation diving and mixed-gas diving are not included.

10.1.2 Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Chapter or relevant to the subject of this Chapter and which are not fully covered by JSSS, the Contractor shall take necessary measures for Diving Works complying with OSHA 1910 Subpart T [Commercial Diving Operations] for Surface-Supplied Air Diving and SCUBA Diving (excluding saturation and mixed-gas diving).

コメントの追加 **[SS69]:** No. 68

10.2 SAFETY PLANS

10.2.1 General Requirements for the Safety Plans for Diving Works

The Contractor shall prepare the following Safety Plans for the Diving Works in compliance with and in addition to the requirements of with JSSS 1.7 [*Contractor’s Safety Plans*].

(1) Bid Stage Safety Plan for Diving Works.

(2) Baseline Safety Plan for Diving Works.

(3) Particular Safety Plans for Diving Works.

(4) Pre-dive Safety Plan for Diving Operations.

コメントの追加 **[SS70]:** No. 69

10.2.2 Bid Stage Safety Plan for Diving Works

In compliance with JSSS 1.7.6 [*Bid Stage Safety Plan*], the Bid Stage Safety Plan for Diving Works shall include an outline plan indicating the Contractor’s operational procedures for each diving mode to be used in the Works This shall be in sufficient detail to give an understanding of the Contractor’s intentions regarding the diving safety procedures that the Contractor intends to implement.

10.2.3 Baseline Safety Plan for Diving Works

(1) In compliance with JSSS 1.7.7 [*Baseline Safety Plan*], the Baseline Safety Plan for Diving Works shall be a development of the Bid Stage Safety Plan and shall include detailed safety procedures and standard checklists to apply to all Diving Operations, equipment procedures, and emergency procedures (at a minimum covering fire, equipment malfunction or failure, adverse environmental conditions and medical illness and injury).

(2) The HSO shall review the Baseline Safety Plan to determine if it is correct and compliant with the requirements of OSHA and JSSS.

(3) A copy of the Baseline Safety Plan together with a copy of the OSHA standard and the Contractor’s policies for implementing the requirements of OSHA (from the Bid Stage Plan) shall be made available at the dive location to each Dive Team member and explained to the Dive Team by the HSO and DPIC.

10.2.4 Particular Safety Plans for Diving Works

(1) In compliance with JSSS 1.7.8 [*Particular Safety Plans*], the Particular Safety Plans shall contain all further information specific to Diving Works not covered by the foregoing Bid Stage and Baseline Safety Plans together with all supplemental information obtained during pre-dive planning and assessment, as necessary to comply with the requirements

OSHA in particular OSHA 1910.421 [Pre-dive procedures] for all Diving Works.

(2) The Particular Safety Plans shall be prepared for the basis of the Pre-dive Safety Plan for each Diving Operation to be carried out in any one (1) day.

(3) The Particular Safety Plans shall include the following for example, however, the plan be modified to be indicative for the use of the Pre-dive Safety Plan:

コメントの追加 **[SS71]:** No. 70

(a) Safety procedures and checklists for each Diving Operation;

(b) Name of each Dive Team member, buddy diver assignments, individual work assignment and responsibility and confirmation from the DPIC that they each comply with all diving health and safety requirements and are therefore approved to work on the Diving Operation;

(c) The planned dive profile for each Diver showing their maximum bottom time and ascent rate with decompression stages and times, taking account of repetitive dives;

(d) Description of all diving equipment, diving gases and consumables, PPE, procedures for their use and signed checklists to confirm compliance;

(e) Description of the workboat and workboat facilities, together with information on the location of the workboat in relation to the dive site, and procedures for the use and operation of the workboat during Diving Operations, any surface hazards and any restriction in operation due to surface traffic conditions;

(f) Description of all other Contractor's Equipment, tools and consumables for the assigned work tasks, procedures for their use and checklists;

(g) The arrangements at the Site of the Diving Works for emergency recompression/decompression and the safe transport of any Diver for treatment;

(h) The climatic, river, lake, marine, natural and physical conditions that are likely to be encountered during any Diving Operation and the procedures for commencement, continuation or stopping of any Diving Operation following any change in these conditions in accordance with JSSS 10.3 [*Climatic, Marine, Natural and Physical Conditions*];

(i) Communication systems and procedures for communications:

(i) between Divers;

(ii) between Divers and the workboat; and

(iii) Between the work boat and the relevant authorities.

(j) Any further information and instructions to be given to the Divers, support assistants and other workers related with the Diving Operations and the working methods and safety measures.

(4) The Particular Safety Plan shall be prepared by the DPIC or another Diver that has the qualification, experience and capability deemed sufficient by the HSO.

(5) The Particular Safety Plan shall be reviewed and approved by the HSO.

(6) The content of the Particular-Safety Plan shall be explained to all Dive Team members during the briefing by the HSO or DPIC in accordance with OSHA 1910.421(f) [Employee briefing].

(7) If considered necessary by either the HSO or DPIC, individual Dive Team members shall be given additional training and testing.

(8) A copy of the Particular Safety Plan shall be made available at the dive location to each Dive Team member.

コメントの追加 **[SS72]:** No. 71

10.2.5 Pre-dive Safety Plan for Diving Operations

コメントの追加 [SS73]: No. 72

The Contractor shall prepare a Pre-dive Safety Plan for each Diving Operation as follows:

(1) To contain information specific to the Diving Operation to be carried out in a day to secure safety of Diving Operation, in accordance with OSHA 1910.421 [Pre-dive procedures].

(2) To describe the items given in the above JSSS 10.2.4 (1) specifically for the particular Diving Operation.

(3) To be used for briefing the Dive team.

(4) To be prepared by DPIC or another Diver that has qualification, experience and capability deemed sufficient by the HSO.

(5) To be submitted to the HSO by the day preceding the scheduled date of the Diving Operation for his review and approval.

(6) To be available at the dive location to each Dive Team member.

10.3 CLIMATIC, MARINE, NATURAL AND PHYSICAL CONDITIONS

10.3.1 General

(1) The Contractor shall compile relevant information from statistical records, recent and current forecasts of conditions which may be encountered in support of the Particular Safety Plan and shall establish criteria and controls for commencement, continuation or stopping of any Diving Operation due to such conditions.

(2) The Baseline Safety Plan shall describe how such criteria shall be applied and how such controls shall be implemented.

コメントの追加 [SS74]: No. 73

10.3.2 Information on Conditions for Particular Safety Plans and Pre-dive Safety Plans

(1) Where necessary, the Contractor shall make exploratory dives to survey and establish all relevant conditions at the dive site such that all Pre-dive Safety Plans are based upon the best and most timely available information.

(2) Relevant information shall also be obtained by the Contractor from all available sources and shall include for example the following:

(a) Climatic information and forecasting at the diving location:

(i) Wind speed and direction;

(ii) Air temperature;

(iii) Surface visibility, fog, sea mist;

(iv) Likelihood and intensity of electrical storm; and

(v) Weather forecasting.

(b) Water/Marine Conditions:

(i) Sea state; wave height and direction;

(ii) Height and time of tides;

(iii) Water depths;

(iv) Water Temperatures;

(v) Water currents, direction and speed;

(vi) Visibility at depths; and

(vii) Water level variation in rivers or lakes during flood periods.

(c) Physical Conditions:

(i) Underwater cables and pipes;

(ii) Wreckage and other artificial obstacles;

(iii) Geotechnical conditions affecting the work; and

(iv) UXO, Dangerous Goods and Hazardous Substances.

(d) Natural Conditions:

(i) Natural obstructions;

(ii) Coral reef or other water or marine life to be protected; and

(iii) Danger from wildlife and precautions to be taken.

(e) Surface Traffic:

(i) Surface traffic details, timings and restrictions, and

(ii) Danger, precautions and control of surface traffic.

(f) Diving Works Area:

(i) Demarcation of diving location; and

(ii) Limits of working area.

10.4 PERSONNEL FOR DIVING OPERATIONS

10.4.1 Qualification of Diving Personnel

Qualification of the Dive Team members shall be in accordance with the specified OSHA requirements and shall for example include the following:

(1) Each Diver shall possess a valid commercial diving certification for the appropriate training level issued by an internationally recognised Diver competence assessment organisation which shall be approved by the HSO and Engineer.

(2) Each Dive Team member shall have the experience and training necessary to perform assigned tasks in a safe and healthful manner.

(3) Each Dive Team member shall have experience and training in the following:

(a) The use of tools, equipment and systems relevant to assigned tasks;

(b) Techniques of the assigned diving mode; and

(c) Diving Operations and emergency procedures.

(4) All Dive Team members shall be trained in CPR and first aid to a minimum standard of that recommended by the International Federation of Red Cross and Red Crescent Societies standard course or equivalent.

(5) Dive Team members who are exposed to or control the exposure of others to hyperbaric conditions shall be trained in diving-related physics and physiology.

(6) The qualifications of all Divers shall be checked and verified in accordance with the specified OSHA requirements.

10.4.2 Designated Person-in-Charge (DPIC)

(1) The Contractor shall assign a DPIC to each Diving Operation.

(2) The DPIC shall have experience in, and knowledge of all phases of the Diving Operation for which he is responsible.

(3) The DPIC shall be immediately responsible for the health and safety of the Dive Team.

(4) The DPIC shall be stationed at the dive location, and shall not be stationed at another dive location (i.e., the DPIC must be stationed at one (1) dive location and be responsible only for the Diving Operation at that location).

(5) The DPIC can be a Diver when qualified as a Diver, and when another Dive Team member is available at the dive location who is trained and capable of performing the necessary functions of the DPIC's duties when the DPIC is a Diver in the water.

(6) The qualifications of the DPIC shall be checked and verified in accordance with the specified OSHA requirements.

10.4.3 Duties of DPIC

The DPIC shall have the duties and responsibilities required by the content of this Chapter and the specified OSHA requirements, including the following:

(1) Manage the health and safety of the Dive Team.

(2) Manage and supervise the Diving Operation.

(3) Assign tasks to Dive Team members.

(4) Issue instructions for the Diving Operation to the Dive Team.

(5) Issue instructions to temporarily stop work when the DPIC considers that it is not safe to continue.

(6) Support the HSO with the health and safety management of the Diving Operations.

(7) Ensure that all members of the Dive Team keep records.

(8) Collect records, check, approve and submit to HSO.

10.4.4 Diver Assignments

(1) Each Dive Team member shall be assigned tasks commensurate to the persons experience and training, except that limited additional tasks may be assigned to a Diver undergoing training provided that these tasks are performed under the direct supervision of an experienced Dive Team member.

(2) The HSO shall not permit a Dive Team member to be exposed to hyperbaric conditions against the member's will, except when necessary to complete decompression or treatment procedures.

(3) The HSO shall not permit a Dive Team member to dive or be otherwise exposed to hyperbaric conditions for the duration of any temporary physical impairment or condition which is likely to affect adversely the safety or health of a Dive Team member.

10.4.5 Assistants and Duties of Dive Team

The Contractor shall appoint such Divers and support assistants within each Dive Team as are considered necessary by the DPIC for the Dive Team to discharge its duties in a safe and competent manner.

All Dive Team support assistants shall have the duties and responsibilities required by the content of this Chapter and the specified OSHA requirements, including the following:

(1) Operate the air compressors.

(2) Control the valve for the surface supply of breathing air.

(3) Communicate with the Diver so that the Diver descends and ascends properly.

(4) Communicate to supply the air to the Diver properly between the assistants in charge to control the valve and to communicate with the Diver.

(5) Inform the Diver immediately when there is any risk due to a failure of air supply, weather

change, sea condition changes, operations of other vessels and potential hazards.

(6) Inspect the connection between the helmet and the breastplate of the Diver before the start of Diving Operations when using a diving helmet.

(7) Coordinate the position of the workboat and avoid any conflict with the Diver.

(8) Ensure the safety of the Diver by maintaining communication with voice or video communication device.

(9) Ensure the safety of the Diver by observing the air bubble of breathing of the Diver.

10.4.6 Health Checks

(1) In addition to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*] and in compliance with the OSHA requirement for the Contractor to make himself fully aware, the Contractor shall carry out particular health checks on all Divers to ascertain that they are medically and physically fit to perform their duties.

(2) Such checks shall include for example checks for the existence of any illness or any deficiency in:

(a) The respiratory system, cardiovascular system, nervous system, musculoskeletal system, ear, nose and throat, and endocrine system;

(b) Vision;

(c) Dental health; and

(d) Any other health conditions and disease which may affect the Diving Operation.

(3) Any Diver that does not pass the above checks shall not be allowed to dive until the condition has improved and after further checks are successful.

(4) Additionally, and in accordance with the OSHA standard:

(a) The DPIC shall inquire into each Diver's health prior to each Diving Operation; and

(b) The Contractor shall advise all Divers of the procedures for reporting physical problems or adverse physiological effects during and after diving.

(5) Consistent with the above and the OSHA provisions, the Contractor shall not require any Diver to dive or otherwise work under hyperbaric conditions when the Diver:

(a) Has any ailment that is likely to adversely affect the safety or health of any member of the Dive Team;

(b) Lacks the necessary training or education; or

(c) Refuses to work under such hyperbaric conditions.

(6) Should a Diver request termination during a dive, the Contractor shall, if necessary, prolong the Diver's exposure to hyperbaric conditions to complete decompression or medical recompression treatment to avoid serious physical harm or death to the Diver.

10.5 DIVING EQUIPMENT, TOOLS, FACILITIES AND WORKBOATS,

10.5.1 Diving Equipment

(1) The Contractor shall provide workboats, diving equipment, work tools and other facilities fully in compliance with OSHA 1910.430 [Equipment].

(2) Workboats, diving equipment, work tools and other facilities are defined as Contractor's Equipment and shall therefore comply with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

コメントの追加 **[SS75]:** No. 74

10.5.2 Diving Workboats

(1) Workboats shall be:

(a) Robust and seaworthy;

(b) Stable in operation;

(c) Suitable size, draft and shape to suit the Diving Operations;

(d) Equipped with marine band radio and with a shore station that is attended at all time that the workboat is in operation and can provide emergency support if required;

(e) Equipped with marine lighting;

(f) Equipped with life jackets, first aid sets, distress flares and other necessary emergency equipment;

(g) Provided with secure and robust ladders or platforms for Divers to easily enter or exit the water; and

(h) Provided with a roof and cabin to protect the crew and Dive Team from heat, cold and rain.

(2) Workboats shall be provided with the means to assist an injured Diver from the water (such as an in-water platform, small boat or basket stretcher) or into a diving bell. The Contractor shall ensure that there are sufficient Dive Team members or additional Contractor's Personnel to assist.

(3) Unless otherwise specified, the Contractor shall provide a separate small boat for rescue at the workboat, suitable for assisting and recovering Divers who are in difficulty or have drifted away from position.

10.5.3 Inspections and Maintenance

The Contractor shall comply with all requirements of JSSS 4.2 [*Inspection, Maintenance and Repair*] and ensure that workboats, equipment, tools and facilities are inspected, fully maintained and operational when mobilised to the Site and thereafter are inspected, maintained and repaired before the commencement of the first and of all subsequent days of operation.

The Contractor shall keep the inspection and working records and make them available for the inspection of the Engineer upon request.

The Contractor shall prohibit use of workboats, equipment, tools and facilities until the requirements of JSSS 4.2 [*Inspection, Maintenance and Repair*] are fully complied with.

10.6 PARTICULAR SAFETY MEASURES

10.6.1 Measures before Diving Operations

The Contractor shall take the following measures before commencement of any Diving Operation:

(1) Dive Teams

(a) Discuss the diving methods and safety procedures;

(b) Discuss the work methods and procedures and the assignment and placing of the Divers and work task sharing;

(c) Advise of the diving timetable and required compliance;

(d) Inform of the climatic, water, natural and physical conditions;

(e) Conduct the health check; and

(f) Check that support assistants and crew on the workboat are wearing life jackets.

(2) Equipment, work tools and other facilities

Inspect the equipment, work tools and other facilities, prohibit use when any defect or non-compliance is found, reinspect when a repair or replacement is completed.

(3) Diving workboats

(a) Inspect workboats and rescue boats;

(b) Display the international maritime diving signal flag and display signs and lights as necessary on the workboat;

(c) Securely anchor the workboat to the water or seabed; and

(d) Stop the engine during Diving Operation.

(4) Diving Operation site

(a) Provide signs including red flags, buoys and notices to demarcate the Diving Operation site; and

(b) Install a downline with depth indication marks at 3m intervals from the workboat to the sea bed at the Diving Operation site to act as a guideline for descending or ascending and as a guide for transfer of tools and equipment.

(5) Diving Equipment

(a) Check the diving equipment to be carried by the Divers:

(i) For Surface-Supplied Air Diving, check for example: air connections, compressed air supply, weight belt, voice or video, communication device, torch, watch, water depth gauge, knife and the like; and

(ii) For SCUBA Diving, check for example: first stage, second stage and spare regulators, available air volume, secondary air supply, buoyancy control device, weight belt, tank straps, air valve, communication device, watch, water depth gauge, knife and the like.

コメントの追加 **[SS76]:** No. 75

(b) Check that the downline is secure and tight;

(c) Ensure as a minimum, that a two-way voice or video communication link is set up and working at least between a single selected working Diver and the DPIC at the surface control point; and

If any defect is identified by the above checks, prohibit the Diving Operation from commencing.

10.6.2 Measures during Diving Operations

The Contractor shall take the following safety measures during each Diving Operation:

(1) A designated member (or members) of the workboat crew shall assist the DPIC by observing the Diving Operations of all Divers throughout all Diving Operation and inform the DPIC when Divers are carried away by currents and their location when they surface after their dive ascent.

(2) A designated member (or members) of the workboat crew on the workboat shall also keep a look-out for any other vessels that may approach the Diving Operation site. The designated member(s) shall alert any other vessels related or not related with the Diving Operations with requisite warning blasts from the workboat's siren, loudhailer, flares and/or flags, etc. in order to prevent them from approaching and entering the Diving Operation site.

(3) Measures for the Divers

(a) Prohibit the Dive Team from commencing any Diving Operation without the DPIC

and the complete Dive Team present, ready and equipped;

(b) Ensure that the Divers use the ladders for entering and exiting the water for the Diving Operation;

(c) Ensure that Divers use the downline for descending and ascending;

(d) Maintain constant voice or video communication through the provided link; and

(e) Ensure that the Divers constantly communicate with each other by hand signals and slate messaging.

(4) Ensure the DPIC or a Dive Team member at the surface, constantly observe the weather and water conditions and if there is any change that meets the work stop criteria, or if the conditions are considered to be otherwise unsafe by the DPIC, immediately stop the Diving Operation and ensure that the Divers are removed from the water in a safe and controlled manner.

(5) Safety and Health Management of Diving Operations

(a) Manage the Diving Works for each Diver so the Diver takes sufficient and safe surface time between dives to maintain his health and wellbeing;

(b) Ensure that sufficient numbers of Divers and standby Divers are available to ensure that Divers are not in the water for excessive periods;

(c) Ensure that each Diver keeps an accurate record of his dive profile for every dive, showing overall time, bottom time and depth, decompression times and depths and that these are summarised by the Diver with a record of the number of dives on a daily, weekly and monthly basis;

(d) Ensure that the DPIC reviews and approves such records and that same are submitted by the DPIC to the HSO for the HSO's review and countersignature and made available for the Engineer's inspection; and

(e) Unless otherwise required by the Law of the Country, the Contractor shall retain all dive records for the periods specified in OSHA 1910.440 [Record keeping requirements].

10.7 DIVING ACCIDENT RESPONSE PLAN

10.7.1 General

The Contractor shall prepare an Accident Response Plan for the Diving Works in accordance with JSSS 1.24 [*Accident Response Plan*].

10.7.2 Provisions by the Contractor

The Contractor shall comply with following requirements prior to Diving Works.

(1) In accordance with the requirements of OSHA 1910.423(c) [*Recompression facility*], the Contractor shall make a recompression/decompression chamber available at the dive location to treat decompression sickness.

(2) The Contractor shall provide any additional recompression/decompression equipment and medical support facilities as necessary to ensure the health and safety of any members of the Dive Team that may require treatment for decompression sickness and other dive related conditions.

(3) The Contractor shall provide rescue and safety equipment, an emergency aid contact list, a first aid kit and supplies. The rescue and safety equipment including decompression facilities, first aid kit and supplies provided at the dive location shall be appropriate for the Diving Works and approved by a physician. When used in a decompression chamber or bell, the first aid kit and any medication shall be suitable for use under hyperbaric conditions.

(4) The HSO and DPIC shall ensure that the recompression/decompression chamber, any additional recompression/decompression equipment, medical support facilities, rescue and safety equipment, emergency aid list and first aid kit are complete and available at the dive location.

コメントの追加 **[SS77]:** No. 76

JSSS 最終案のための JICA コメント･NK 対応説明一覧表

20200828

No.	JSSS Clauses	JICA Comments (20200722) Mandatory to change, for discussion/inquiry, - NK	NK Explanation/Actions	Proposal for Final JSSS
1.	ACKNOWLEDGEMENTS 2) OSHA	-	OSAH の定義と規定の変更(下記 A1.1.1(6)及び 2.1.4、2.5.1)、及び JSSS で OSHA Part 1910 Subpart T Commercial Diving 及び Part 1926 Safety and Health Regulations for Construction Works の 2 つの Parts を参照しているため、2)の“Part 1926… for Construction” を削除しました。	2)の一部の記述を削除しました。
2.	1.2.2 (2)	(2) References to “Laws of the Country” shall include all safety standards under such Laws and shall also include references to Laws of any other jurisdiction ~~that may be stated in the Contract Data~~. (JC3 and JC4). JC3: GC1.1.6.5 では Contract Data に記載するような立て付けにはなっていない。PSS に記載するようにすべき。 GC 1.1.6.5 does not specify this in the Contract Data. It should be mentioned on the PSS. JC4: deleted.	貴コメントに関し、下記の GC 1.4 では、any other jurisdiction は Contract Data と規定しています。JSSS の規定から that may be stated in the Contract Data を削除した場合、any other jurisdiction が自動的に JSSS に適用されることになります。そのため、原案の jurisdiction that may be stated in the Contract Data に戻すことを提案致します。 *GC 1.4 Law and Language: The Contract shall be governed by the law of the country or other jurisdiction stated in the Contract Data.* *GC 1.1.6.5: “Laws” means all national (or state) legislation, statutes, ordinances and other laws, and regulations and by-laws of any legally constituted public authority.*	(2)を原案に戻し、Contract Data を規定することを提案します。
3.	1.2.2 (6)	-	発注者が PPE を保有していない場合やハーネス等の PPE の発注者やエンジニアへ提供する必要がある場合があるため、請負者が要員及び関係者へ提供すべき安全管理役務や設備に下記のように PPE を追加しました。 (7) …the same services and facilities (including for example healthcare…provision of PPE, records,…	(6)に PEE を追加することを提案します。
4.	1.4.5 Specified Standards (4)	(4) Where JSSS refers to the standards of other countries, such reference is only to the technical requirements contained in such standards and not to any related ~~l~~ Laws (JC8) ~~or~~ legal enforceability (JC9) of any of those ~~other~~ (JC10) ~~countries~~. JC9: Legality?	MD 氏は下記のようにこれらの用語には合法性と法的強制力の違いがあり、(4)では JSSS にこれらの国の法的強制力は適用しないとの意図で規定しています。そのため、原案を提案致します。 “Legality” means whether the subject is legal or not and is not suitable. “legal enforceability” has a different meaning i.e. the means to ensure that people comply with laws and is correct. This clause is to cover the use of OSHA for example which is obviously legally enforceable only in USA. We understood that JSSS where so specified is to include the technical requirements of OSHA but not the US laws regarding enforcement penalties and legal action against employers when they do not comply with the law.	原案通り、legal enforceability を提案します。
5.	1.7.3 (2)	(2) ~~Commencement Stage~~ Baseline (JC14)Safety Plan (Updated Bid Stage Safety Plan). C14: FIDIC では Baseline を使用することが普通。Baseline Safety Plan と呼称	FIDIC GC で Baseline の用語は使用されていませんが、契約遂行時の基準となる着工時の計画の programme, schedule, cost に Baseline が一般的に使用されていると理解しております。コメントにもとづき、Baseline Safety Plan に変更致します。	Baseline Safety Plan に変更致します。

		Baseline is generally used in FIDIC. It should be replaced with Baseline Safety Plan.	尚、BLSP の変更を明確に規定するために次を 1.7.7 Baseline Safety Plan の(4)として追記することを提案致します。 (4) If, at any time, the Engineer gives notice to the Contractor that the Baseline Safety Plan fails (to the extent stated) to comply with the Contract or to be consistent with the Contractor's stated intentions, and that cannot be corrected by the issue of a Particular Safety Plan, the Contractor shall submit a revised Baseline Safety Plan to the Engineer in accordance with this Clause.	1.7.3 (4)に BLSP の変更に関する規定の追加を提案します。
6.	1.7.3 (3)	(3) Particular Safety Plans ~~(Updated separate plans if necessary for particular parts of the Works.~~ (Separate plans or updated Baseline Safety Plan).	Particular Safety Plans（PSP）は、下記の 1.7.8 に規定のように、現場の状況に応じて Baseline Safety Plan (BLSP)に基づき、特記を記載するものと考えております。 Baseline SP は、安全計画の原則を記載するものであることから、アップデートが必要な時は Baseline SP の改訂版で行うと考えます。 そのため、(3)は次の原案を再提案致します。 (3) Particular Safety Plans ~~(Updated~~ separate plans if necessary for particular parts of the Works.) *1.7.8 Particular Safety Plans* *(1) These shall be prepared as necessary to suit changing circumstances or conditions at the Site, or following the issue of ~~later~~ (JC17) Method Statements, or where considered necessary by the HSO or when required by the Engineer.* MD stated "Commencement Stage Plan" means one comprehensive plan to be submitted at Commencement and before works start. We understood that any further updates for parts (if ever necessary) would be covered by a separate "Particular Safety Plan" for a particular part of the Works. Update and re-issue of the comprehensive BLSP during the execution of the Works will be a time-consuming and potentially wasteful task that we did not expect.	左記の変更案を提案します。
7.	1.7.7(1)	(1) This shall be submitted within twenty-eight (28) days after the Commencement Date ~~and not less than twenty-eight (28) days before commencing any work at the Site~~. (JC15) JC15: These double limitations are sometimes very difficult or almost impossible to follow. If a contractor intends to erect a flag pole at the site on the commencement day, he must have submitted the Baseline Safety Plan 28 days before the Commencement day.	請負者は着工直後に準備作業として事務所や宿舎、アクセス道路の建設を開始する場合があります。安全管理の原則を規定する Baseline Safety Plan がまず必要です。そのため、コメントに従い工事の 28 日前の期限は削除しますが、次のようにいかなる工事の前に Baseline SP の作成提出を要求することを提案致します。 (1) This shall be submitted within twenty-eight (28) days after the Commencement Date and before commencing any work at the Site.	原案の一部を削除した左記の規定を提案します。
8.	1.9.5 (1)	(1) The Engineer ~~may~~ reviews the Method	エンジニアの Method Statement のレビューに関し、貴機構と議論を重ね	原案の"may"

		Statements and ~~may~~ gives (JC26) notice of non-compliance to the Contractor… JC26: revised.	ました結果として、原案は”may review”と規定しております。下記で説明しておりますが、1.7.9 (3)(a)で The Engineer may review the Safety Plans と規定しています。同様に、Method Statement のレビューに関しましても、コメントの”may”の削除ではなく、原案の”may review ”を提案致します。 NK: This “may” is most important and essential part in JSSS as seriously discussed between JICA and NK. 1.7.9 (3) specifies (a) The Engineer may review the Safety Plans and may give notice 1.9.4 (1) shall be same as 1.7.9. MD: I agree with NK comment. As we have discussed before, the use of “may” is intentional and an important requirement. It is optional and review and response should remain at the discretion of the Engineer, similar for example to programmes. See also FIDIC 2017 Clause 4.9.1 Quality Management System where “may is also used. Preparation of method statements under GC 4.1 should remain as a general obligation of the Contractor (as and when requested by the Engineer) with no stipulated requirements for review or response by the Engineer, hence “may”. NK2: NK request to use “may”.	を規定することを提案します。
9.	1.11.3	If an accident has occurred, the Engineer may instruct the Contractor to suspend the Works or any part of the Works under GC 8.8 [Suspension of Work] and not allow resuming ~~w~~ Works ~~to recommence~~ (JC30) until such time as:	英語の使用上の観点から、次の変更案を提案致します。 and not allow work to recommence until such time as: MD stated the modification is not correct grammatically; the original wording is correct, but modified.	英語の使用上の観点から左記への変更を提案します。
10.	1.11.3 (1)	(1) The cause has been investigated and established (JC31) by the Contractor. JC31: Is this term appropriate?	英語の使用上の観点から次の変更案を提案致します。尚、1.13.2(6)に事故調査は HSO の責務であることから(1)の Contractor を HSO に変更しました。 MD stated it is appropriate, it is necessary to establish the cause (meaning to discover, prove, or decide upon the true cause) before proceeding. As there is difficulty it may be better to say: (1) All circumstances have been investigated and the cause of the accident has been established by the HSO.	英語の使用上の観点から左記への変更を提案します。
11.	1.11.3 (4)	(4) The measures have been implemented to ensure that no such accident can (JC32) reoccur. JC32: May?	英語の使用上の観点から原案を提案致します。 MD: “Can” is correct	英語の使用上の観点から原案を提案致します。
12.	1.14.1	~~If the Engineer has issued an instruction under JSSS エラー! 参照元が見つかりません。 [Safety~~	1.13(4) にもとづき HSO は作業の仮の中止を指示します。そのため、変更案の or other wise ではなく、原案（or if the HSO has temporarily stopped	左記の説明の通り、原案

		~~*Compliance Instructions from the Engineer*~~] ~~or if the HSO has temporarily stopped the Works or any part of the Works in accordance with JSSS~~ ~~エラー! 参照元が見つかりません。~~ ~~[*HSO – Scope of Duties and Authority*]~~ If any part of the Works have been suspended due to safety reason whether the Engineer has instructed a suspension under JSSS 1.11 [Safety compliance Instructions from the Engineer] or otherwise, then, unless otherwise instructed by the Engineer, the procedure for resuming the Works or any part of the Works, shall be as follows:~~-~~(JC45) JC45: revised.	the Works…）に戻すことを提案します。 MD stated whilst the Engineer possesses the contractual right to suspend, the Contractor possesses no such right, the HSO can only temporarily stop the Works which is why it was worded in this way. I do not suggest any change.	に戻すことを提案致します。
13.	1.16.1	~~Respective~~ ~~s~~ Safety staff of the both (JC49) may also attend. JC49: modified.	英語の使用上の観点から次の変更した原案を提案致します。 Respective safety staff may also attend. MD stated not necessary to modify and the change is not correct.	英語の使用上の観点から左記の案を提案します。
14.	1.17.1 (3)	(3) Analyse unsafe or non-compliance conditions and determine the effective measures (JC50) JC50: modified.	英語の使用上の観点から次への変更を提案致します。 MD stated “non-compliance” should be “non-compliant”.	英語の使用上の観点から変更を提案致します。
15.	1.20.1	Safety induction training shall be provided by the Contractor for all Contractor’s Personnel, any ~~s~~Subcontractors, suppliers and others for whom he is responsible,~~ including the Employer’s Personnel and all other persons who are entitled to be on the Site at the request of the Employer or Engineer~~ and if requested by the Engineer, the Employer’s Personnel and/or other persons who are entitled to be on the Site. (JC57) JC: 57: modified.	貴変更は、エンジニアが要求した場合、請負者は新規入場者教育を、発注者の要員へ実施することと理解します。 一方原案は、発注者の要員及び発注者及びエンジニアが現場への立入りを要求し認められた者への新規入場者教育を含めて実施することと解釈します。 発注者の要員は、現場では請負者の安全ルールに従うことが必要ですので、原則としてすべての要員への何らかの教育を行うべきと考えます。 MD 氏の下記の回答の通り、エンジニアが要求した場合 Variation になることから、原則発注者の要員を含め教育する原案を提案致します。 MD stated why is the change necessary and what is the meaning of “if requested by the Engineer”? It is now not clear and could be argued that any such request would constitute a variation instruction under GC 13, which would then create an obligation to pay the Contractor additionally for this. As the Contractor has a defined duty of care under the Contract to “take care for the safety of all persons entitled to be on the Site” (see GC 4.8) the original wording is correct. As a default, the Contractor should be responsible for providing safety	左記のとおり、新規入場者教育の実施は、原案を再提案致します。

			induction training for all persons that are entitled to be on the Site. We do not recommend that the Engineer be involved in this process as this will tend to divide and therefore confuse the Contractor's clear responsibilities.	
16.	1.21.3 (5) & (6)	-	1.21.3 Further Training of Operation Leaders and Skilled Workers の(5) & (6)は、1.21.2 の後半の(1) & (2) と重複しているため、削除致します。.	左記の理由で削除致します。
17.	1.24.2	1.21.2 Medical, first aid and related services and facilities at the Site for accidental injuries shall be made available free of charge to the Contractor's Personnel. If so specified in the Particular Safety Specification, such medical services and facilities shall also be made available free of charge for ~~the family members of the aforementioned~~ other personnel/persons (e.g. the family members of the Contractor's Personnel, Employer's Personnel and their family members). (JC65) JC65: modified.	GC6.7 に規定の請負者及び発注者の要員への役務の提供を明確にすることと、PSS に規定があればその家族への無料提供するために、コメントを参考に原案を次のように変更しました。 Medical, first aid and related services and facilities at the Site for accidental injuries shall be made available free of charge for Contractor's and Employer's Personnel. If so specified in the Particular Safety Specification, such services and facilities shall also be made available free of charge for the family members of such Contractor's and Employer's Personnel. MD stated the JC's addition of "Contractor's Personnel" on the second line and "Employer's Personnel" in the last line, means that Employer's Personnel are not now covered. This is effectively not compliant with GC 6.7 where the Employer's Personnel should be covered actually under the Contractor's prevailing duty of care for anyone on the Site. *GC 6.7 Health and Safety … the Contractor shall ensure that medical staff, first aid facilities, sick bay and ambulance service are available at all times at the Site and at any accommodation for Contractor's and Employer's Personnel.* We will assume that the original text should not be changed.	左記の理由で原文の変更を提案致します。
18.	1.24.4	1.24.4 The Contractor shall provide the following medical and first aid facilities on the Site: JC: added.	必要な医療サービスや施設の提供は、現場内が無理な場合は現場外でも可能と考えます。そのため、on the Site の追記しないことを提案致します。 MD: I think it is not necessary and maybe not correct to add "on the Site" The Contractor shall provide such facilities off the Site if there is no room on Site, for example on land which he has arranged himself. The important thig is that the facilities are provided	左記の理由で追加しないことを提案します。
19.	1.24.5	… where local health authorities do not exist or are lacking in capability or standard of medical care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site to comply	医療だけでなく、医療を含む一般的な安全衛生の care ケアが必要と考えます。また、GC4.8(b)に規定の現場に立入りを容認された者の安全に配慮する必要があります。そのため、削除部分を残すことを提案します。 MD stated I do not recommend the addition of "medical" or the later deletion.	左記の理由で原文を残すことを提案いたします。

		with his obligations as specified in the Particular Safety Specification ~~and as are necessary to fully protect all relevant personnel~~. (JC67) JC67: added and deleted.	The Contractor has an overriding obligation under the Contract to provide care to all persons that are entitled to be on the site, the deletion now limits this duty to whatever may (or may not) be defined in the Particular Safety Specification, which is not a recommended default.	
20.	1.24.8	to perform Cardiopulmonary Resuscitation (CPR) and also to operate an Automatic External Defibrillator (AED) in accordance with the requirements of JSSS 2.9 [*PPE and First Aid*]. (JC69) JC69: added.	Annex A1.1.3 abbreviation に、CPR、AED は定義されています。そのため、原文の通りと致します。	左記の理由で原文通りと致します。
21.	1.26.11	-	本款の規定は、対象者が明確でないため、削除を提案します。 1.26.11 The Contractor shall also allow use of existing medical facilities, ambulances and equipment all as circumstances reasonably permit or as instructed by the Engineer. (NK13) NK13: Is it necessary to mention to whom the Contractor shall allow. MD stated It is probably better to delete this clause as there is no real definition of what emergency services and facilities are to be provided or for whom they are to be provided.	左記の理由で本款の削除を提案します。
22.	1.30.2 (3) (e)	(e) Items to be coordinated with police, fire department and other ~~related organisations~~ relevant authorities; (JC83) JC83: modified.	(3)(b)では役所等を authorities、(3)(e)は消防署等を organization と使い分けています。そのため、(e)は消防署等を意味する原文の使用を提案します。 MD stated please note that these are not “relevant authorities” under the definition in Clause 1.2.2 (7) below and which are covered by (b) above. *1.2.2.(7) Any reference in JSSS to “relevant authority” or “relevant authorities” shall mean one or more legally constituted public authorities that own or have legal jurisdiction over the work or property concerned.*	左記の理由で原文通りとすることを提案いたします。
23.	1.36.2	1.36.2 Healthcare services and facilities at the Site shall be made available free of charge. If so specified in the Particular Safety Specification, such healthcare services and facilities shall also be made available free of charge for ~~the family members of the aforementioned~~ other personnel/persons (e.g. the family members of the Contractor’s Personnel, Employer’s Personnel and their family members). (JC92) JC92: revised.	請負者及び発注者の要員は無料、特記に規定があれば家族も無料と規定するために、下記のように変更致しました。 1.36.2 Healthcare services and facilities at the Site shall be made available free of charge for Contractor’s and Employer’s Personnel. If so specified in the Particular Safety Specification, such healthcare services and facilities shall also be made available free of charge for the family members of such Contractor’s and Employer’s Personnel.	左記のように変更しました。
24.	1.36.4 (2)	-	マラリアの予防接種は現時点では商業的には存在しないため、下記を削	左記の理由

			除致します。 Provision of anti-mosquito measures including nets, medications ~~or inoculations~~ (NK16) and the like in malarial prone areas. NK16: It is deleted because of no commercially available malaria vaccine as shown in WHO: https://www.who.int/immunization/research/development/malaria/en/ MD stated understood and agreed	で inoculations を削除いたします。
25.	1.37.2	1.37.2 An alternative standard is acceptable by reference to JSSS ~~エラー! 参照元が見つかりません。 [Compliance with JSSS and Other Regulations]~~ [Specified Standards] (JC94) providing that the proposed alternative also contains equivalent or higher standards for the management of Temporary Works. JC95: 引用先は 1.4 が正しいと思いますが、念のためご確認下さい。 Please confirm the reference is 1.4 or 1.4.5.	1.4 は JSSS と他の規則の順守ですが、1.4.5 の(2)に代替案を提案できると規定しています。そのため、1.37.1 は代替基準の提案に関する条項ですので、1.4.5 [Specified Standards]を規定致します。	1.4.5 を規定致します。
26.	A1.1.1 (6)	-	(6) "**OSHA**" means the technical requirements of ~~"OSHA Standard Part 1926 Safety and Health Regulations for Construction", as written in~~ the OSHA standard(s) from the Code of Federal Regulations (29 CFR) ~~and~~ published by the Occupational Safety and Health Administration, U.S. Department of Labor.	(6) 定義を変更しました。
27.	A1.1.2		各章で定義の用語を、Annex A1.1.2 に移動し、定義語をまとめました。 5 章、7 章、10 章	A1.1.2 定義の内容を変更しました。
28.	A1.1.2 (14)	(14) "**Elevated Access Structures**" means the substantial, elevated, temporary working platforms, usually comprised of structural steel columns, beams, framing and floor decking and used for performing ~~works at Sites~~ the Works with difficult access or with restricted room for construction operations or steeply sloping or offshore Sites. JC: deleted and modified.	作業を行うことが目的である作業構台の定義を規定するために、工事全体を示す the Works ではなく、作業を意味する works を再提案致します。 MD: It may be better to change "Works" to "works".	左記の理由で works を再提案します。
29.	A1.1.3		A1.1.3 略語 GFCI 及び RCD を追記しました。	A1.1.3 略語を追加しました。
30.	2.1.4 & 2.5.1	with the technical requirements specified in OSHA Standard Part 1926, Subpart E "Personal Protective and Life Saving Equipment", and Subpart M ~~—~~ "Fall Protection" ~~of "Part 1926 Safety and Health~~	OSHA の参照の方法を、次のように規定することを提案致します。 OSHA 1926 Subpart F [Xxx] OSHA 1926.152 [Xxx] OSHA 1910 Subpart T [Commercial Diving…]	OSHA の参照の方法を左記のように変更し、統一

		~~Regulations for Construction”~~ and as follows:~~-~~(JC129) JC129: deleted and modified.	OSHA 1910.423I [Recompression facility] MD stated following JICA comment on later JSSS 2.5.1 it is apparent that there are inconsistencies in the numerous references to OSHA. As coordinated with NK, we have now simplified all reference to OSHA and made them consistent following the following convention: Refer also to change in the definition in Annex 1.1 & 2.5.1 also. There is also no need to refer to “technical requirements” as these are referred to in JSSS 1.4.5 (4).We have edited this throughout JSSS.	致しました。
31.	2.1.4 (3)(b) (c)	-	下記の最大騒音の規定を、OSHA をもとに追記しました。 (b) Further to JSSS 2.1.4 the Contractor shall comply with OSHA 1910.95 [Occupational noise exposure], in respect of exposure to impulsive or impact noise; (c) Exposure to impulsive or impact noise shall not exceed 140 dB peak sound pressure level; and MD stated above is added by reference to the changes for Blasting sound in JSSS 7.6.3.	左記のように追記しました。
32.	2.1.4 (3)(d)	(b) The Contractor shall monitor all workers whose noise exposure is equivalent to or greater than a noise exposure received in eight (8) hours where the noise level is constantly 90 dBA. The exposure measurement must include all continuous, intermittent, and impulsive noise within an 80 dBA to 130 dBA range and must be taken during a typical work situation. The Contractor shall choose the monitoring method that best suits each individual situation. (JC250) JC250: 音量のレベルと、サイト内で規制をかけるということについては、参照文献を確認させてください。dB の表現（dBA とするか否か）についてもそれに合わせて確認願います。 Please submit reference documents for JIICA’s confirmation. Please check which of dB or dBA shall be specified.	OSHA の下記の規定に基づき(b)を、90dB を 85dB へ変更し、dBA はdB に戻しました。 **§1910.95 Occupational noise exposure.** (b)(2) TABLE G-16—PERMISSIBLE NOISE EXPOSURES Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level. (d) *Monitoring.* (1) When information indicates that any employee's exposure may equal or exceed an 8-hour time-weighted average of 85 decibels, the employer shall develop and implement a monitoring program. (2)(i) All continuous, intermittent and impulsive sound levels from 80 decibels to 130 decibels shall be integrated into the noise measurements.	左記のように変更及び原案に戻しました。
33.	2.1.7 (1)	(1) …regularly ~~throughout the Time for Completion of the Works.~~ until the Taking-Over Certificate is issued for the entire Works. (JC114A) JC114A: revised.	モニタリングの期間は、下記の理由で原案を提案致します。 Taking-Over Certificate（引渡し証明書）は、部分引渡しも含むため下記のように引き渡された部分のモニタリングはできないことになります。そのため through Time for Completion of the Works（完成期限内）を提案します。	左記の理由で、原案を提案します。

			MD stated this change is not correct; the original wording is correct. The Contractor has no such obligation (or right or need) to access any Sections of the Works which have been completed and taken over by the Employer. Similarly, there is no such right to access any part of the Permanent Works that have been taken over, occupied or used by the Employer.	
34.	2.1.7 (8) (f)	(f) Other parts of the Works required to evidence the Contractor's compliance with the ~~Contract~~ Safety Plan; and	Safety Plan より Contract の方が包括的であり、原案の Contract を提案します。 MD: Contract is better as it is more inclusive.	左記の理由で、原案を提案します。
35.	2.1.7 (9)	(9) The Contractor shall prepare a monitoring plan as a part of the Safety Plan or Method Statement for the above Works (JC115) which shall describe: JC115: Is "the above Works" to be replaced with "for the works hereinabove"?	英語の使用上の観点から原案を提案します。 MD stated I suggest not, the "above Works" is correct. As an improvement, this could be changed to the "for work of the types referred to in this Clause, which shall describe:"	左記の理由で、原案を提案します。
36.	2.1.7 (10) (e)	(e) Confirm the occurrence and extent of any adverse effect of the Works execution (JC116) by means of regular inspections of all Other Properties; JC116: JC wonder whichever is appropriate "to execution of the Works" or "caused by execution of the Works"?	次の MD 氏の提案に変更致します。 MD stated fair comment, I suggest that "arising out of the execution of the Works" is better, as follows: (e) Confirm the occurrence and extent of any adverse effect arising out of the execution of the Works by means of regular inspections of all Other Properties;	左記の変更案を提案します。
37.	2.2.1 (3)	(3) In addition to taking necessary action to keep any unauthorised persons off the Site the Contractor shall fully inform the relevant local ~~police force~~ authorities (e.g. police force) and if necessary request their ~~assistance~~ investigation to remove any trespassers from the Site. When requested by the Contractor, the Employer shall provide reasonable assistance to coordinate with such local authorities. (JC120) JC120: modified and added.	Authorities は、1.2.2 (7)で下記のように工事や建物を所有している官庁と定義しています。警察、消防署は 1.30.3 (3) (e)では organization を使用していることから貴案を変更した organization (e.g. police force) 及び assistance を提案致します。 MD stated the police force is not a "relevant authority" within the context of the definition in Clause 1.2.2 (7). 1.2.2 (7) Any reference in JSSS to "relevant authority" or "relevant authorities" shall mean one or more legally constituted public authorities that own or have legal jurisdiction over the work or property concerned. "Assistance" is correct and has more meaning than "investigation" as this is what the Contractor will require.	左記の理由で、変更案と原案を提案致します
38.	2.2.1 (5)	(5) to prevent alcohol and drugs from being brought onto the Site. (JC120) JC120: modified and added.	英語の使用上の観点から原案を提案します。 MD stated the addition of "from" is not grammatically correct.	左記の理由で、原案を提案します。
39.	2.2.4 (1) (b)	and pedestrians alike; and guidance to road-users and pedestrians alike (JC122); and JC122: Is it "and the like?	英語の使用上の観点から原案を提案します。 MD: Suggest no, the original text is sufficient.	左記の理由で、原案を提案します。

40.	2.5.5 (3)	(1) Top-rails shall be designed to withstand 90 kgf. of horizontal force and mid-rails 70 kgf. of horizontal force and sufficient uprights shall be provided to sustain these forces.	重力単位系表示の kgf の規定から、国際単位系(SI)の N への変更を提案致します。 90kgf=883N、70kgf=686N	左記のとおり、SI 単位への変更を提案します。
41.	2.6.4	2.6.4 Preventive Measures against Windblown Dust and ~~Windblown~~ Debris JC: changed location.	2.6.4 (1)で ejected or windblown dust and debris と記述していることから、本款のタイトルから次のように windblown の削除を提案致します。 2.6.4 Preventive Measures against Dust and Debris	タイトルの変更を提案します。
42.	2.7.5 (1) to (9)	(1) The Contractor shall follow the recommendations of OSHA as described in their Fact Sheet [refer to https://www.osha.gov/Publications/OSHA3863.pdf] (JC144) JC144: web のリンクを張られている箇所がここを含めて 2 か所のみ（もう一つは 2.9.1（8））あるのですが、こういうやり方でなければ引用できないのであれば残す、そうでなけれ別の引用方法を考えることとしてください。	OSHA の規定の要点を下記のように新規に追記しました。 (1) The Contractor should recognise lightning as an occupational hazard and take precautions to prevent exposure of all Contractor's Personnel thereto. (2) to (9). MD stated please refer to the redrafting above to incorporate the main points from the OSHA recommendation.	左記の通り、変更、追記しました。
43.	2.7.7 (3)	When abnormality (JC145) is found in instruments, recalibrate or replace them. JC145: malfunctioning or damage?	安衛則の英語訳で使用している「異常」の英語を“abnormality”と規定しています。MD 氏の意見は、下記のようにこのままでも変更してもどちらでも可でした。JSSS を日本のコンサルタント・請負者が使用することを考慮し、原案通り“abnormality”を提案致します。 MD stated although “abnormality” is appropriate, I prefer an alternative however this wording is very frequently used in your (NK) draft so I have preserved this thinking that it is more understandable by your team. Please advise if you require this to be altered and we will change throughout. NK2: I checked the use of abnormality. Japanese OHS regulations use “abnormality” at many clauses. However, OSHA, BS, GC do not use at all. They use “fault” and “damage”. MD: There is really no problem with using this word. Actually as JSSS is essentially for the use of contractors (not employers) and as many or most such users will be Japanese, it may be helpful. Either way there is no problem NK: JSSS will leave as they are because Japanese regulations use “abnormality” and many Japanese consultants and contractors may use JSSS..	左記の理由で、原案とおりといたします。
44.	2.9.1 (8)	(8) Respiratory Protection Equipment (RPE) Selection and use of RPE shall be in accordance with HSE publication HSG53 (Fourth edition, published 2013), (https://www.hse.gov.uk/pubns/priced/hsg53.pdf) (JC153), RPE must be both adequate and	HSE の要点を追記し、次のように変更しました。 (8) RPE shall protect workers' airways, lungs and related bodily systems against damage and injury from Harmful Substances or from oxygen-deficient atmospheres when other controls are either not possible or insufficient on their	左記の通り、変更致します。

		suitable, whereby: JC153 same comment to 2.7.5. (JC144) JC144: web のリンクを張られている箇所がここを含めて 2 か所のみ（もう一つは 2.9.1（8））あるのですが、こういうやり方でなければ引用できないのであれば残す、そうでなけれ別の引用方法を考えることとしてください。 There are two locations in JSSS which refer to website (another is 2.9.1 (8)). If it is essential/avoidable to specify requirements by method of referring to the websites, they will be left as they are, if not please propose another method to refer to.	own. RPE shall be selected with due consideration of: (a) the Hazardous Substance(s) and the concentration in the air (exposure); (b) the form of the substance in the air (e.g. gas, particle, vapour); (c) and (d) … RPE shall be: (a) Correct for the Hazardous Substance such that it reduces exposure to the level required to protect the wearer's health; and (b) Correct for the wearer, task and environment, such that the wearer can work freely and without additional risks due to the RPE. MD stated refer to our notes under JSSS 2.7.5. I would prefer to refer to the HSE Guide as it is very comprehensive, however the above simple redrafting incorporates some of the main points from the HSE Guide together with the existing reference to ANSI Z88.2-2015 in Table 2.9.5 below, should be sufficient but please review and advise if there are any further requirements.	
45.	4.1.4	4.1.4 Instruction for Contractor's Personnel Further to the requirements of JSSS 1.7 [*Contractor's Safety Plans*], JSSS 1.9 [*Contractor's Method Statements*] and JSSS 1.15 [*Contractor's Safety Management Activities*], the Contractor shall include details of the following in the Method Statement and Safety Plan for the ~~w~~ Works (JC171) involving the use of Contractor's Equipment and shall fully inform all relevant Contractor's Personnel associated therewith of all requirements before the commencement of any such operations, ~~including~~ such as: (JC172) JC171: 混在しているので一部修正した箇所があります。 Works and work are mixed in their use, so revision is made at some places.	"Works"（GC1.1.5.8 「工事」）と"work"（GC3.1 では「作業」、GC3.2(a)では「工事」）を、内容に合わせて使用しております。本款では、MS と SP を作るべき「工事/作業」である"work"と規定する意図がありますので、原文とおり"work"で規定致します。 MD stated the original is correct. There are two uses generally; relevant work or works refers to a subject task(s); Works is a defined term under the Contract.	左記の理由で、原案とおりと致します。
46.	4.1.6 (3) (c) & (d)	(c) ~~Ensure that~~ Inform the Contractor's maintenance personnel ~~are made aware~~ of any apparent defect or maintenance requirements. ~~And that such personnel have performed any required repair or maintenance before the start of operation.~~ (JC176) JC176: deleted and added.	欠陥のある又は保守が必要な機械を運転しないことの規定が必要ですので、変更文に次を追加致します。 "and not use such Contractor's Equipment till any required repair or maintenance is performed." MD stated not now the same meaning, the alternative wording is weaker and effectively means that equipment can be used even when defective. An operator should not be forced to use equipment which is defective, this clause now allows it.	左記の理由で、追記を提案致します。

			NK: addition of “and not use such Contractor’s Equipment till any required repair or maintenance is performed.”	
47.	4.3.3 (2) (i)	(i) Operators of excavating equipment are aware that excavator buckets shall never pass over the operator’s seat of another Contractor’s Equipment; (JC180) JC180: revised and added. (“another” is necessary to make the stipulation meaning.)	英語の使用上の観点から“any other”へ変更致します。 MD stated use of “another” is not correct, “any other” would be better.	左記のように変更致します。
48.	4.3.9 (1)	the Contractor on ~~on~~ until completion and taking over of the Works. JC: changed.	英語の使用上の観点から“on or before”へ変更致します。	左記のように変更致します。
49.	4.3.12 (3) (d) and (e)	-	NK の電気専門家に相談し、下記の理由で下記(d)と(e)の代わりに(d)を規定することに致しました。(詳細は別紙の添付-1 参照) 1)感電事故防止の装置の種類と適用国は次である。 ・ELCB: Earth Leakage Circuit Breaker, 漏電遮断装置:日本 ・RCD: Residual Current Device, 残留電流装置(JIS B9960-1 漏電電流保護装置):欧州、IEC ・GFCI: Ground-fault circuit interrupters,地絡回路遮断装置:米国 2)電源・接地系統の種類と適用国は次である。 ・TT 接地系統:日本 ・TN 接地系統:欧米 3)感電防止装置の種類と使用国は次である。 ・ELCB は、日本特有の装置である。 ・RCD は欧州、世界中の国で使用されている。 ・GFCI は米国、世界中の国で使用されている。 上記の使用状況から判断し、JSSS は国際的な装置である GFCI 及び RCD を、下記(d)のように規定致します。 ~~(d) Wherever possible provide an ELCB (Earth Leakage Circuit Breaker) or RCD (Residual Current Device) in the electrical supply to electrical equipment;~~ ~~(e) If for any reason, an ELCB or RCD cannot be provided, ensure that the metal exterior of the electrical power supply, metal outer casing of electric motors and the electrical equipment are all grounded;~~ (d) Provide grounding to all electrical power supply systems with GFCI or RCD in accordance with JSSS 6.7.3 [*General Safety Requirements*];	左記の理由で(d)の変更、(e)の削除を提案致します。
50.	4.7.1 (3)	(3) Unless otherwise specified in the Contract, all such tanks, foundations, support and containment structures, paved surfaces, fencing, screens and associated facilities shall be demolished, ~~and~~ removed and disposed of in a safe~~ly~~ and ~~in an~~	英語の使用上の観点から原案の“on”を提案します(他の部分は MD の変更です。) MD stated “on” is correct.	左記の理由で、原案とおりと致します。

		environmentally acceptable manner by the Contractor ~~on~~ until (JC192) completion and taking over of the Works. All areas shall be backfilled, restored to a safe and suitable condition, cleaned and landscaped, all to the approval of the Engineer. JC192: revised.		
51.	旧 5.1.2 (1) to (5)	-	各章・節の定義を、Annex 1.1 へ移動し、他の章節で共通して使用するように変更しました。結果として、（1）–(5)の定義を削除しました。	左記のとおり削除しました。
52.	旧 5.1.2 (3) and (4)	(3) "**Rated Capacity**" means the maximum hoisting load for each certain types of Hoisting Equipment as officially permitted recommended by the manufacturer. This will vary according to configuration of Hoisting Equipment and conditions of use such as length and angle of boom and other factors as permitted officially recommended by the manufacturer. (JC193) (4) "**Safe Working Load**" means the maximum safe working load for each type, size and capacity of Hoisting Equipment and Rigging Equipment as officially recommended by the manufacturer. (JC193) JC193: Rated capacity は mobile Clane と tower Clane に限定され、その他のクレーンには safe working load が適用されるはずです。 JC understand that Rated Capacity is applied to mobile Crane and tower Crane, and safe working load is done to other cranes.	OSHA の中で Rated Capacity と Safe Working Load が混在しています。そのため、JSSS の中で分かりやすいように、この用語を統一して下記のように Annex 1.1.2 に定義することを提案致します。 "Annex 1.1.2 (29) "Rated Capacity" (referred to occasionally in OSHA and elsewhere as "Safe Working Load") means the maximum load capacity for items of Contractor's Equipment and Temporary Works, as officially recommended by the manufacturer. The Rated Capacity may be dependent upon the configuration and conditions of use (e.g. length, angle of boom and the like). MD stated both terms are similar or even the same, it appears that the word "safe" was dropped in some countries for legal reasons and Rated Capacity or Manufacturer's Rated Capacity used instead. OSHA still uses both, however there is really no clear separation of meaning in OSHA which refers generally to: Rated Capacity for cranes, derricks, jibs and booms of cranes, ladders, platforms, jacks, lift trucks and stackers, hoist assemblies (Rigging Equipment?) slings (ditto), electric blasting equipment, and SWL for Rigging Equipment (the latter including overhead hoists) which appear to duplicate some of the above I suggest as an alternative in JSSS that the separate definition for SWL is not necessary, could be deleted and the definition for example could be as above: This adjustment also and simply solves JICA query JC 261 and 266.	左記のように Annex 1.1.2 に定義することを、提案致します。
53.	5.2.5 (1), (2), (JC195) (3), (5), (14), (JC196) 5.4.1 (1) (3) (JC199)	(1) Select Hoisting Equipment which has a Rated Capacity~~/Safe Working Load~~ (JC195)and function compatible with the work conditions and requirements, including loads, surface conditions, access, working area, radius and angle of boom, etc. (2) Clearly display the Rated Capacity~~/Safe Working Load~~ of the Hoisting Equipment so that all operators	5.1.2 (3) and (4)で説明致しましたように、Rated Capacity に統一し、関係個所を変更致します。	左記のように変更致します。

		and Riggers are fully aware at all times. (JC195) JC195: added.		
54.	5.2.1 (1) (b)	(b) The Hoisting Operation ~~area limits~~ Boundary; (JC194)	定義されていないため、小文字で boundary と致します。 MD stated “Boundary” is not a defined term and should not be capitalised.	左記のように変更致します。
55.	5.2.5 (14) (c)	-	重力単位系表示の kgf の規定から、国際単位系(SI)の N への変更を次のように提案致します。(500kgf=4,903N) The assumed load (i.e. 1.3 times of total weight of gondola and workers on board plus ~~500 kgf~~ 4,903N) shall not exceed	左記のとおり、SI 単位への変更を提案します。
56.	6.1.4 (2)	(c) Other standards proposed by the Contractor to which the consent of the Engineer is provided. (JC202) JC202: added.	JSSS 1.4.5 (2)で代替基準の提案を認めていますので、(c)での追加は重複と考えられ、(c)を追記しない原案を提案致します。 MD stated the addition is not necessary as the Contractor is allowed to propose an equivalent alternative under JSSS 1.4.5 (2).	左記の理由で、原案通りを提案致します。
57.	6.2.1 (4)	(4) In the case of (a) and/or (b) hereof (JC205), the Earthwork Support may not be required, JC205: is “hereof” “hereunder” or “below”?	英語の使用上の観点から“following”の使用を助言致します。 MD stated “hereof” should be changed to “following”	左記の通りと致します。
58.	Table 6.2.1	Earthwork Support: Piles, walings ~~s~~ and strutting (JC210) Vertical or horizontal displacement ~~,~~ of struts and waling and other members. (JC210) JC210: revised.	“struts”及び“walings”で統一致します。	左記の通りと致します。
59.	6.3.4 (7)	…to be “safe for use”. (JC219) JC219: modified.	英語の使用上の観点から“”無しに変更します。 Edited throughout as lower case first letters and no quotation marks so that it is consistent and does not conflict with JSSS 6.5.3	左記の通りと致します。
60.	6.4.4	JC222: 6.4.4 に出てくる ladders は全て potable ladders にした方がよいのではないでしょうか？ご検討下さい。 Please check if all “ladders” shall be replaced with “portable ladders”	原案では移動はしごの定義が無いため、JSSS で使用するはしごは移動はしごであること、固定はしごは別であることを、下記の斜文字のように追加で記述することを提案致します。 NK: I think they are better to be replaced. To MD, how do you think? MD: Whilst we do not use ANSI or OSHA as a reference standard for ladders, please note that: 1) ANSI standard A14. 2-1990 defines a **“portable ladder”** as "a **“ladder”** that can readily be moved or carried, usually consisting of side rails joined at intervals by step, rungs, cleats, or rear braces." If they are fixed **“ladders”** they are required to have fall protection at a length of 24 feet. 2) OSHA 29 CFR 1910.21(e)(2) defines “fixed ladders as "a ladder permanently attached to a structure, building, or equipment." Portable ladders are not defined in the standard, but by inference, a portable ladder would be any ladder not fitting the definition of a fixed ladder. 3) The ANSI standard A14.2-1990 defines a portable ladder as "a ladder that can	左記の理由で、ladder の解釈の追記と、原案の使用を提案します。

			readily be moved or carried, usually consisting of side rails joined at intervals by step, rungs, cleats, or rear braces." There is no reference standard in JSSS for ladders and the use of “portable” is therefore not prescribed. Maybe better to include for example the following clause here and merely refer in all other places merely to “ladders”: *For the purposes of interpretation and unless otherwise stated in JSSS the word “ladders” shall be deemed to mean portable ladders, namely those that can be easily moved or carried even if temporarily restrained and that are not an integral part of a building, structure or equipment.* *Fixed ladders meaning those that are permanently attached to a building, structure, or equipment shall be the subject of separate design by the Contractor if for use in Temporary Works or by the Employer if for use in Permanent Works.* *Fixed ladders whether for use in Temporary Works or Permanent Works shall be provided with fall protection for lengths of 7.32 metres and above in accordance with ANSI standard A14. 2-1990.*	
61.	6.6.3 (5)	(5) Provide ~~w~~ Walkways in accordance with JSSS 6.4 [*Walkways, Ladders and Stepladders*]. JC: revised.	Walkways は定義されていないため、原案の小文字と致します。 尚、次のように解釈を規定しています。 2.5.7 (1) Walkways For the purposes of interpretation: “walkways” mean route or passage for safe movement of pedestrians including walkways, bridge type walkways, covered walkways, ramps, ladders and stepladders.	左記の理由で現案を提案します。
62.	6.7.3 (2) (c)	-	電気専門家による助言をもとに、以下の理由で、原案の変更を提案致します。 (詳細は別紙の添付-1 参照) 1) 接地が不要な安全な電圧として、日本は 60V、OSHA は、50V、HSE は、55V 又は 64.5V を規定しています。 2) 各国の配電電圧により接地不要な電圧が異なることから、OSHA1926.405 を基本とする原則から、(c)は 50Vを規定します。 (変更案) Where cordless tools are not used, as a first preference the Contractor shall use cord and plug connected tools on a low voltage supply system with a maximum voltage to ground not exceeding 50V subject to the supply system at the Site. (原案) Where cordless tools are not used, as a first preference the Contractor shall use cord and plug connected tools ~~with a maximum voltage to ground not exceeding 50V/55V; and~~	左記の理由で変更案を提案します。
63.	6.7.3 (3)		電気専門家による助言をもとに、下記のように原案の変更を提案致します。(別紙の添付-1 参照) JSSS6.7.2 で OSHA1926.405 を遵守することと規定していることから、OSHA で規定の Ground-fault circuit interrupters (GFCI)を規定し、( )書きで IEC 及び英国で規定の RCD (Residual Current Device)を規定します。GFCI 及び RCD は Annex に定義を追加致します。	左記の理由で変更を提案致します。

			(変更案) (3) GFCI (also referred to as RCD) (a) Ensure that equipment, tools, leads, wires or cables are free of defect or damage, in particular when mains supply is used; (b) Use GFCI or RCD to detect any faults in the electrical system and rapidly switch off the supply; and (c) GFCI shall be properly installed and enclosed; properly checked; treated with care; kept free of moisture and dirt; and protected against vibration and mechanical damage. (原案) (3) ~~Residual current (trip) devices~~ (a) Ensure that equipment, tools, leads, wires or cables are free of defect or damage, in particular when main supply is used; (b) Use RCD to detect ~~some~~ faults in the electrical system and rapidly switch off the supply; and ~~RCDs~~ shall be properly installed and enclosed; properly checked; treated with care; kept free of moisture and dirt; and protected against vibration and mechanical damage.	
64.	7.2.1 (4)	(4) The Contractor shall be responsible for preserving the structural integrity (JC239) of all excavated sides ~~and excavations~~ (JC240) and shall provide whatever Earthwork Support may be necessary to achieve this, in accordance with the requirements of JSSS 6.2 [*Earthwork Support*]. JC239:オープン掘削を前提としているので、掘削した側面について言及するということだと思いますが、その際 structural integrity という言い方でよいものでしょうか。ご検討ください。 This sub-clause specifies excavated side surfaces in open excavation. Please review whether the use of "structural integrity" is proper.	下記の説明の通り、原案の structural integrity を使用致します。 MD stated the clause refers to all types of excavations including open cut and structural excavations. "Structural integrity" which is more than stability, it includes physical homogeneity and strength of sides of all such excavations.	左記の通り、原案通りと致します。
65.	7.2.1 (6)	(6) If loose rock, boulders, trees and the like, are positioned above working areas and where there is any risk that these may pose a danger to workers, ~~unless otherwise instructed by the Engineer,~~ the ~~HSO~~ Contractor (JC242) shall prohibit workers from entering the working areas and ~~issue appropriate instructions including for example to~~ take following measures as appropriate: (JC241) JC242: revised.	安全管理に関する事項であることから、HSO を原案通り残すことを提案致します。 NK: HSO shall be left as it is. To MD, please review this. MD: HSO should remain as this clause is primarily to cover his safety management.	左記の通り、原案通りと致します。

66.	7.6.3	7.6.3 Blasting Noise (JC250) Noise levels, measured in areas close to the Exclusion Zone and in areas accessible to other workers or the public shall not exceed a sound pressure level of 85 dBA and/or a peak sound level of 110 dB. Noise levels measured at the boundary of the Site shall not exceed a sound pressure level of 85 dBA and/or a peak sound level of 110 dB. JC250: 音量のレベルと、サイト内で規制をかけるということについては、参照文献を確認させてください。dB の表現（dBA とするか否か）についてもそれに合わせて確認願います。 Please submit reference documents for JIICA's confirmation. Please check which of dB or dBA shall be specified.	下記の理由で、下記の斜文字の規定に変更することを提案致します。 (詳細は別紙添付 - 2 参照) 1) 香港 MTR のスペックを参考にし、85 dBA と 110 dBを規定していました。 2) 日本の騒音規則は、現場の境界で 85 dB を越えないことと規定。 3) OSHA は、peak sound pressure level が 140dB を越えないことと規定。 4) HSE は、同様に 140dB を越えないことと規定。 以上から、現場の境界では、香港 MRT を参照に 85dBA 及び 110 dBを越えないこと、現場内では JSSS 2.1.4 [Noise]の規定を遵守することを追加で規定します。 尚、2.1.4 に peak sound pressure level は 140dB を越えないことを追加で規定します。 NK: Please refer to the explanation separately attached. MD: The reference is made to the Hong Kong MTR, Materials and Workmanship Specification for Civil Engineering Works, Blasting Works clause 25.12, provided by JICA as shown below. "Noise arising from blasting, when measured at any locations open to the public, shall not exceed a sound pressure level of 85 dBA *and/or a peak sound level of 110 dB."* NK: Japanese Noise Regulation Act stipulates noise of the specific construction works shall not exceed 85 dB at the boundary of the working area. It does not mention other than this. NK propose to replace them with the following: *7.6.3* *Noise levels measured at the boundary of the Site shall not exceed a sound pressure level of 85 dBA and/or a peak sound pressure level of 110 dB.* *Noise from blasting in the Site shall be controlled in accordance with JSSS 2.1.4 [Noise].* NK: The following sentence may be stipulated in 2.1.4 (b) to cover impulsive or impact noise. 2.1.4 (b) *Exposure to impulsive or impact noise shall not exceed 140 dB peak sound pressure level.* (copied from OSHA 1926.52 (e))	左記の理由で、変更を提案致します。
67.	7.6.6 (6)	(6) Environmental and health compliance requirements including vibration, noise, fire, and the like, required by ~~Laws~~ Laws of the Country (JC253) and the Contract.	契約ですでに要求事項が規定されていることから、required by 以降を削除し、要求事項のみを規定することを提案致します。 MD stated it originally stated "Law and the Contract" which was correct. As added by JICA, "Law of the Country" is not necessary or correct. To	左記のように一部の削除を提案致します。

		JC253: Is the Law of the Country correct?	simplify suggest delete the phrase:“, required by Laws of the Country (JC253) and the Contract”	
68.	旧 10.1.2 (1) (a) to (e)	10.1.2 Definitions JC270: modified. JC271: Annex 1.1 にも定義あり。どちらかを削除。 There are definitions in Annex 1.1 and the above, so one shall be deleted. JC272: (d)とほとんど内容が同じで意味を為していません。左記のように修正してはどうでしょうか。 The content is almost same as (d). The revision is proposed as above.	他の章と同様に用語の定義を Annex 1.1 へ移動しました。“Diving Works”の定義も変更しました。	Annex へ定義を移動しました。
69.	10.2.1	10.2 DIVE SAFETY PLANS 10.2.1 General Requirements for the Dive Safety Plans ~~(1)~~ The Contractor shall prepare Dive Safety Plans as part of the Safety Plan for the Works in compliance with the requirements of with JSSS 1.7 [*Contractor's Safety Plans*]. ~~(1) The submission requirements in accordance with JSSS エラー! 参照元が見つかりません。 [*Contractor's Safety Plans*] shall be as follows:~~ (JC274) ~~(a) The Bid Stage Safety Plan shall include the Outline Dive Safety Plan;~~ ~~(b) The Baseline Safety Plan shall include the Updated Dive Safety Plan; and~~ ~~(c) The Particular Safety Plans shall include the individual Particular Dive Safety Plans to be submitted for and in advance of each Diving Operation.~~ JC274: ドラフトファイナルにおいて、前回のバージョンと比較して Dive Safety Plan の記述をかなり拡充していただいていますが、以下の 2 点に関して違和感があったので、大きく修正しています。 (1) Diving についてだけ、Bid Stage、Commencement、Particular と 3 種類の Safety Plan を要求していること。 (2) Particular については、ドラフトファイナルで頂いていた記述を見ると、個々の Diving Operation 毎に提出することを求めているように思えるが(10.2.1(2))、Diving Operation の定義と合わせ読むと、例えば「同じケーソンに関する作業をするの	貴コメントをもとに、他の工事で規定している 3 種の Safety Plan（SP）に追加して、潜水作業直前に作業内容の確認及び安全点検等を行う貴案の Dive Safety Schedule と同じ目的の Dive Operation Safety Plan を追加する下記の変更案を提案致します。その理由は下記のとおりです。 (1) The Contractor shall prepare the following Safety Plans for the Diving Works in compliance with <u>and in addition to</u> the requirements of with JSSS 1.7 [*Contractor's Safety Plans*]. (a) Bid Stage Safety Plan for Diving Works; (b) Baseline Safety Plan for Diving Works; (c) Particular Safety Plans for Diving Works; and (d) Pre-dive Safety Plan for Diving Operation （以下、Safety Plan、Bid Stage Safety Plan、~~Commencement /~~Baseline Stage Safety Plan、Particular Safety Plan を SP、BSP、BLSP、PSP と略します。） (1) 潜水作業以外でも 3 種類の SP を要求しております。他の作業は、BLSP で一般的に詳細な安全対策が規定されていますが、JSSS 1.7.8 & 1.7.9 のように現場の状況や特殊性に応じて PSP を作成することを規定しています。 コンクリート工事では、9.2.1 (2)で、PSP とは記述していませんが、コンクリート作業で必要な詳細な SP の作成を規定しています。 発破作業では、1.7 SP の規定に追加して 7.6.7 Blasting Safety Plan の作成を規定しています。 (2) ご指摘の通り Diving Operation は一回の潜水と規定しています。BLSP で潜水チームや潜水場所等の具体的な記述が無い場合、PSP で実際の潜水作業（複数の潜水作業）の詳細の記述が必要です。	左記のように 4 種類の SP を提案致します。

		に、午前と午後で Diving を 2 回に分けてやるときには、午前で 1 回、午後にも 1 回、それぞれの Diving Operation 事に Safety Plan を提出する」ようなことを意味しているようにも読み取れ、それはさすがにやりすぎのように見える。 上記の事情から、Bid Stage、Commencement に関しては、それぞれの段階での全体の Safety Plan に Diving のことも記述することを求める記述にしてあります。 また、個別の Diving Operation に関する Safety Plan については一日の Diving 作業に関する記載をまとめて「前日までに提出する」ことで記載を修正し、名称も Dive Safety Schedule としています（10.2.4（1）の修正をご覧ください）。	OSHA1910.421(d)Planning of a diving operation で規定の潜水計画は、貴案の Dive Safety Schedule と考えます。OSHA と名称を合わせまして、Pre-dive Safety Plan として作成することを提案致します。 貴コメントを参考に、4 段階の SP としまして、現実的に適用できる案として上記の 4 種類の SP を提案致します。	
70.	10.2.4 (1)	10.2.4 ~~Particular~~ Dive Safety ~~Plans~~ Schedule (1) ~~In compliance with JSSS 1.7.8 [*Particular Safety Plans*], the Particular Dive Safety Plans shall contain all further information specific to each Diving Operation not covered by the foregoing Bid Stage and Baseline Dive Plans together with~~ In order to secure safety of all Diving Operations, a dive safety schedule shall be prepared containing information specific to Diving Operations to be carried out in a day together with all supplemental information obtained during pre-dive planning and assessment, to collectively demonstrate the Contractor's compliance with the requirements of OSHA and JSSS for each Diving Operation, including for example: (JC277) JC277: deleted, added and modified.	10.2.1 で提案しましたように、10.2.4 として Particular Safety Plans (for Diving Works)を提案致します。貴機構提案の Dive Safety Schedule は、10.2.5 に 10.2.5 Pre-dive Safety Plan に規定致します。 (1) In compliance with JSSS 1.7.8 [Particular Safety Plans], the Particular Safety Plans shall contain all further information specific to Diving Works not covered by the foregoing Bid Stage and Baseline Safety Plans together with all supplemental information obtained during pre-dive planning and assessment, as necessary to comply with the requirements OSHA in particular OSHA 1910.421 [Pre-dive procedures] for all Diving Works. (2) The Particular Safety Plans shall be prepared for the basis of the Pre-dive Safety Plan for Diving Operation to be carried out in a day. (3) The Particular Safety Plans shall include the following for example, however, the plan shall be modified to be indicative for the use of the Pre-dive Safety Plan:	変更案を提案します。
71.	10.2.4 (k) to (o)	(k) ~~The Particular Dive Safety Plan shall be prepared by the DPIC or another Diver that that has the qualification, experience and capability deemed sufficient by the HSO;~~ A dive safety schedule shall be prepared by DPIC or another Diver that has qualification, experience and capability deemed sufficient by the HSO; ~~(JC277)~~ (l) ~~The Particular Dive Safety Plan shall be reviewed and approved by the HSO;~~ A dive safety schedule shall be submitted to the HSO by the	上記の説明の通り、PSP を本款では規定しますことから、原案に戻すことを提案致します。なお(1)は PSP の内容を規定することから、PSP の作成手続きや取り扱いを規定する(k)から(o)は(4)から(8)への変更を提案致します。	原案及び番号の変更を提案します。

		day preceding the scheduled date of the Diving Operations for his review and approval; ~~(JC277)~~ JC277: deleted, added and modified.		
72.	10.2.5	10.2.5 Pre-dive Safety Plan	10.2.1 で提案しましたように 10.2.5 Pre-dive Safety Plan (Dive Safety Schedule の代替)の款及び規定を次のように提案致します。 10.2.5 Pre-dive Safety Plan The Contractor shall prepare Pre-dive Safety Plan for each Diving Operation as follows: (1) To contain information specific to the Diving Operation to be carried out in a day to secure safety of Diving Operation, in accordance with OSHA 1910.421 [Pre-dive procedures]; (2) To describe the items given in the above 10.2.4 (1) in specific according the Diving Operation to be made; (3) To use for briefing to the Dive team. (4) To be prepared by DPIC or another Diver that has qualification, experience and capability deemed sufficient by the HSO; (5) To be submitted to the HSO by the day preceding the scheduled date of the Diving Operation for his review and approval; (6) To be available at the dive location to each Dive Team member.	款の追加を提案します。
73.	10.3.1 (2)	(2) The (updated) Baseline ~~Dive~~ (JC278) Safety Plan shall describe how such criteria shall be applied and how such controls shall be implemented. JC278: deleted and modified.	(updated)の追加の必要性について検討致しました。Baseline SP は基本的な計画を規定するものですので、特別な場合のみ原則の変更を行うことは避け、作業に必要な計画は、Particular SP に記載すべきと考えます。他と統一するためこの(2)の(updated)の追記はをしないことを提案致します。	(updated) の削除と 1.7.7(4)の追記を提案します。
74.	10.5.1 (2)	(2) Workboats, diving equipment, work tools and other facilities are defined as Contractor's Equipment and shall therefore comply with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*]. (JC281) JC281: Bette to also refer to JSSS 4 since this relates to Contractor's Equipment?	1.35 が機器施設を全体的に網羅していますことから、追加での規定は不要と考えます。 MD stated not really necessary as it will then also be necessary to add Chapter 6, whereas the reference to JSSS 1.35 covers all.	左記の理由で追加しないことに致します。
75.	106.1 (5) (a) (ii)	(ii) …tank straps, air valve, (JC284) communication device, watch,… JC284:1 次 Regulator とは異なるものでしょうか。Is "air valve" different form first stage regulator?	次のような説明がありました。 MD: Yes, it is different. The "air valve" is the air tank valve which is separate and additional to the first and second stages.	左記のとおりで原案とおりと致します。
76.	10.7.2 (4)	(4) The HSO and DPIC shall ~~determine whether~~ secure that (JC287) the recompression JC287: revised and added.	英語の使用上の観点から"secure"の代わりに"ensure"の使用を提案致します。 MD stated if changed better to change to "ensure that".	左記の理由で"ensure"を使用します。

JSSS Final Document 27th August 2020

DCI General Coordination and Editing (Issue 2)

Preamble Notes:

Now that this document is nearing completion, there exists the first real opportunity to carry out overall editing and coordination in any meaningful way. We did not get the chance to complete this in June because of the lack then of available time and also because extensive changes were still being made throughout.

Kindly note that we have generally not prepared separate notes for each of the minor corrections and changes arising from this latest editing and coordination exercise as this has been accomplished mainly in the clean copy but all changes have been shown in red fonts.

We suggest that this document be appended to the NK report so that JICA are fully informed of editing checks and coordination that have been carried out.

Editing Generally

Our latest exercise for coordination and editing has covered the following topics and items:

1) Structure and reference as follows:

1	**CHAPTER**
1.1	**SECTION**
1.1.1	Clause
1.1.1(1)	Sub-Clause
1.1.1 (1) (a)	paragraph

2) Contents pages formatted and corrected
3) All cross references prefixed with "JSSS" contain no mention of “Chapter”, “Section” or “clause”.
4) All cross references have correct number and description.
5) Cross reference to Chapter do not contain full stop after number.
6) All words in Chapter 2 to 10 Clause headings (except “and”, “in”. “of” and the like) capitalised first letters
7) All words in paragraph headings, first words capitalised first letter.
8) Punctuation checked.
9) Blue numbering arising from added comments corrected
10) All JSSS and GC cross reference description in italics.
11) All main body text in TNR 11, Chapter headings in Times New Roman (TNR) 12
12) Content page TNR 10 so that descriptions generally fit to one and line.
13) Headers TNR 9
14) Footers TNR 10
15) All text justified, clause and paragraph spacing plus 6 points
16) Reference to OSHA simplified and standardised:

    OSHA 1926 Subpart F [Xxx]

    OSHA 1926.152 [Xxx]

OSHA 1910 Subpart T [Commercial Diving ..]

OSHA 1910.423I [Recompression facility]

17) Reference to other standards edited similarly.

18) All comments and notes removed (JC, NK and MD)

19) Numbers added in text, e.g. twenty-eight (28) (to be consistent with JSSS/SAR JICA Accident Report and elsewhere)

20) Check for English - English

e.g. authorised, organisation, specialised, stabilised etc. etc.)

21) Heading for example of JSSS 9.2 “PARTICULAR SAFETY MEASURES FOR CAST-IN PLACE CONCRETE WORK”, is changed simply to “PARTICULAR SAFETY MEASURES” to be consistent with the abbreviated titles used in some other Chapters

(Please refer to Contents pages for clearer understanding of this)

We recommend that this process be extended to introduce further consistency and remove other unnecessary wording such as the following:

NK 追記：ご同意いただきましたら、下記の題名の変更を最終案で行うことを計画しております。

6.1.1 Design and Provision of Temporary Works ~~Generally~~

6.1.3 Monitoring the Performance ~~of Temporary Works~~

6.3.6 Monitoring ~~Water Level and Other conditions~~

6.5.3 Notices to be Displayed ~~on scaffolds~~

6.5.4 Scaffolding Assembly, Erection, Alteration and Dismantling ~~Generally~~

6.5.5 Inspection and Maintenance ~~of Scaffolding~~

6.6.2 Design and Management ~~Generally~~

6.7.4 Method Statement ~~for Temporary Electrical Installations~~

7.1.2 Monitoring ~~of Excavation Works and Surroundings~~

7.5.2 Safety Measures ~~During Structural Excavation~~

7.6.7 Risk Prevention ~~of Workers and Neighbouring Residents~~

7.6.10 Monitoring ~~Impact of Blasting Works on other properties~~

7.6.11 Particular Safety Measures ~~for Blasting Works~~

8.2.7 Monitoring ~~Impact of Foundation Piling Works on other properties~~

10.2.1 General Requirements ~~for the Safety Plans of Diving Works~~

10.2.2 Bid Stage Safety Plan ~~for Diving Works~~

10.2.3 ditto

10.2.4 ditto

10.3.2 Information on Conditions ~~for Particular Dive Safety Plans and Pre-Dive Safety Plans~~

10.4.1 Qualification ~~of Diving Personnel~~

10.4.5 Assistants and Duties ~~of Dive team~~

We have not changed the above but request your further instructions, following receipt of which,

changes can now be easily accomplished in the final Document.

Other particular changes:

1) "first aid" not "first-aid"
2) "cast-in-place" not "cast-in place"
3) "Hand-dug" not "Hand-Dug"
4) "Ready-mixed" not Ready-Mixed"
5) "coordination" not "co-ordination" - please confirm there is only one hyphenated use in FIDIC, many non-hyphenated uses in JSSS
6) "Cofferdams" not "Coffer dams"
7) "Excavation Works" (caps) and not "Excavation Work
8) Ground Anchor Works
9) Concrete Works ditto
10) Dangerous Work
11) "services and facilities" not "facilities and services"
12) (7.6.8) "Storing" changed to "storage" for consistency
13) "working area" not "work area"
14) "… safe for use," not "Safe For Use"
15) "work" not "site work"
16) "taking-over" not "taking over" (FIDIC)
17) "co-operation not cooperation (FIDIC)
18) "marine works" developed to include rivers and lakes also
19) "commencing" added after the words "prior to the work" to correct the wording.
20) "Law" of the country corrected to "Laws".

    Laws "of the Country" left in as used in many cases although may not be necessary.

    Please refer our earlier explanation provided against item 1.2.2 finally as follows:

    "Please refer to FIDIC and also JICA Standard Bidding Documents, Section VIII. Particular Conditions (Part A: Contract Data). If the Contract is to be governed by the laws of another jurisdiction this should be stated in the Contract Data (under Governing Law, GC 1.4) (and not the PSSS."

    GC 1.4: 1.4 Law and Language – "The Contract shall be governed by the law of the country or other jurisdiction stated in the Contract Data."

    If it is differently stated in the Contract data then JSSS will be inconsistent with the Contract

    We have not changed this throughout but please advise if a change is to be made to the numerous references in other Chapters.
21) References to Tables made consistent and in italics
22) "kgf: is instructed by JICA for JSSS 2.5.5, 2.5.16 (5) and 5.2.5 (14) even though it is not in accordance with usual international practice or with the International Metric System of SI Units. JSSS has been changed to SI Units:
23) 70kgf=686N, 90kgf=883N, 2,270kgf=22,261N (5000 lbf), 500kgf=4,903N)

NK3: comments to MD2 20200815
MD2: comments 200813
NK2 comments on MD FR1 8/7 (20200813)
MD: Comments and suggestions by DCI
JICA comments 1) Sentences in shading in blue colour is mandatory revision, 2) Those in yellow colour is for MD's review and discussion, and 3) Those in no colour are explanation to NK by JICA. 4) Those in grey colour is NK's proposal, typo.

For Final by JICA/NK

JICA STANDARD SAFETY SPECIFICATION FOR PROJECT IMPLEMENTATION UNDER JAPANESE ODA

Japan International Cooperation Agency (JICA)

31st August 2020

Prepared: DCI for NK
Issue: FR2
Date: 24/08/2020

ACKNOWLEDGEMENTS

JICA have referred to other publications during the preparation of this document and parts of such other publications have been used in the preparation hereof. JICA acknowledges and gives credit to these sources/publications which include:

1) Japanese Acts, Orders and Ordinances including:

Industrial Safety and Health Act

Order for Enforcement of Industrial Safety and Health Act

Ordinance on Industrial Safety and Health

Safety Ordinance for Cranes

Ordinance on Safety and Health of Work under High Pressure

Ordinance on Prevention of Anoxia, etc.

Ordinance on Prevention of Hazards Due to Dust

Explosives Control Act

Order for Enforcement of Explosives Control Act

Ordinance on Explosives Control

2) OSHA Standards ~~Part 1926 Safety and Health Regulations for Construction",~~ as written in Code of Federal Regulation (29 CFR) and published by the Occupational Safety and Health Administration, U.S. Department of Labor.

MD: Please refer to notes in Annex 1.1 against the definition of OSHA

SS2: agreed.

3) Construction (Design and Management) Regulations 2015, published by the UK Health and Safety Executive.

4) Conditions of Contract for Construction for Building and Engineering Works Designed by The Employer (Multilateral Development Bank Harmonised Edition June 2010) published by Fédération Internationale des Ingénieurs-Conseils (FIDIC)

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JICA STANDARD SAFETY SPECIFICATION (JSSS)

Table of Contents

CHAPTER 1: GENERAL REQUIREMENTS

~~The following are presently excluded and will be covered in JSSS Second Edition:~~ (JC1)

~~Chapter 11. Railway Works~~

~~Chapter 12. Road Works~~

~~Chapter 13. Bridge Works~~

~~Chapter 14. Tunnelling Works~~

~~Chapter 15. Dam Works~~

~~Chapter 16. Demolition and Alteration Works~~

JC1: 現時点では未定のため削除とします。
Not yet determined preparation of these, so deleted.

CHAPTER 1: GENERAL REQUIREMENTS

1.1 ~~Safety Declaration~~ SAFETY DECLARATION (JC2)

JC2: 2 章以降との横並びをとる意味で、Section レベルでのタイトルは全て大文字にする。以下、1 章を通じて同じ

To make style of titles of Sections consistent in JSSS, all titles of Sections in Chapter 1 shall be capitalized.

1.1.1 Adopting the slogan "SAFETY FIRST", the Contractor shall proactively aim to achieve "Zero-Accident" by applying the highest achievable standards of health and safety management.

1.1.2 A Safety Declaration shall be submitted with the Bid, declaring the Bidder's commitments and obligations, in accordance with JSSS Annex 1.3 [*Additional Contractor Forms*], Form JSSS/BSD - Bidder's Safety Declaration~~,~~ .

1.2 GENERAL REFERENCE NOTES

1.2.1 For Definitions, abbreviations and standards contained in JSSS, refer to JSSS Annex 1.1 [*Definitions and Abbreviations*].

1.2.2 The following further general reference notes apply to the content of JSSS:

(1) References to "Bid" and "Contract" and to "Bidder" and "Contractor" shall be interchangeable according to the context of their use. "Bid" and "Bidder" shall become "Contract" and "Contractor" after the Contract Agreement has been executed.

(2) References to "Laws of the Country" shall include all safety standards under such Laws and shall also include references to Laws of any other jurisdiction ~~that may be stated in the Contract Data~~. (JC3 and JC4) that may be stated in the Particular safety Specification.(NK2)

JC3: GC1.1.6.5 では Contract Data に記載するような立て付けにはなっていない。PSS に記載するようにすべき。
GC 1.1.6.5 does not specify this in the Contract Data. It should be mentioned on the PSS.
JC4: deleted.
NK: To MD, do we add this to the PSS? I think this is general requirements, so we can delete as references to Laws of any other jurisdiction is included in the Laws.

MD: In some countries it is likely that there are no local laws relating to safety standards meaning that the requirements of other jurisdictions can be applied if so decided by stating such other jurisdiction in the Contract Data. Maybe it is better if this is transferred to the User Guide. If it is considered that no such mention of User Guide is required here then we suggest that the entire clause should be deleted because as modified, it appears that the requirements of any other jurisdiction can be applied without definition or restriction by either party to the Contract.

NK2: I cannot exactly know what is other jurisdiction. Because JC3 suggested to replace Contract Data with PSS, will we specify PSS instead of CD or deleted all (2)?

MD2: Please refer to FIDIC and also JICA Standard Bidding Documents, Section VIII. Particular Conditions (Part A: Contract Data). If the Contract is to be governed by the laws of another jurisdiction this should be stated in the Contract Data (under Governing Law, GC 1.4) and not the PSSS.

GC 1.4: 1.4 Law and Language The Contract shall be governed by the law of the country or other jurisdiction stated in the Contract Data.

NK3: I confirmed your comment. We leave the original sentence.

(3) Any reference to "Safety" unless otherwise evident from the text shall also be construed as reference to "Health and Safety".

(4) Any reference to academic, educational or vocational qualification within this document, shall mean a valid qualification demonstrated by a certified true copy of a diploma, degree, or other official certification issued by an acknowledged educational institution

of the Country or an equivalent alternative certification issued by an acknowledged educational institution of another country.

(5) Unless otherwise stated in JSSS, any reference in JSSS to the Site, shall also be deemed to include other places (if any) where the Contractor intends to execute or is executing the Works including for example offsite storage, fabrication and assembly areas and any other working areas outside the Site boundary.

(6) JSSS requires the provision of safety management services and facilities by the Contractor to Contractor's Personnel and unless otherwise stated this shall also be deemed to include the provision by the Contractor of the same services and facilities (including for example training, accident response, healthcare, records, reports, control of hazards and risks, use of Temporary Works, and the like) to any ~~subcontractors~~ Subcontractor, suppliers and others for whom the Contractor is responsible including Employer's Personnel and all other persons that are entitled to be on the Site. (JC5)

JC5: 大文字で始まる場合と小文字で始まる場合が混在していたので、大文字で統一しています。

There are head capital and small letters of Subcontractor and subcontractor. All subcontractor is replaced with Subcontractor.

(7) Any reference in JSSS to "relevant authority" or "relevant authorities" shall mean one or more legally constituted public authorities that own or have legal jurisdiction over the work or property concerned.

(8) JSSS shall form a part of the Contract for the Works and therefore the definitions contained in the Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer, Multilateral Development Bank Harmonised Edition June 2010, General Conditions together with the Particular Conditions Part A - Contract Data and Part B - Specific Provisions, as applied to that Contract, apply equally and are used in JSSS.

Unless specified otherwise or instructed by the Engineer, the issue of JSSS to be used for the Contract shall be that which is applicable at the Base Date.

1.3 INCORPORATION OF JSSS INTO THE CONTRACT

1.3.1 JSSS shall form a part of the Safety Specification which, in turn forms a part of the Specification. The Safety Specification shall have priority over the other parts of the Specification in respect of health and safety matters. Within the Safety Specification, the Particular Safety Specification shall have priority over JSSS.

1.3.2 The Annexes to JSSS ~~Chapter~~ 1: General Requirements shall be read and construed as an integral part of JSSS.

1.4 COMPLIANCE WITH JSSS AND OTHER REGULATIONS

1.4.1 JSSS specifies the minimum health and safety requirements to be complied with by the Contractor throughout the execution of the Works.

1.4.2 JSSS shall not limit the Contractor's statutory or regulatory duties and responsibilities under the Laws of the Country and/or the specific health and safety requirements of the Contract.

1.4.3 The Contractor shall comply fully with the requirements of the Safety Specification.

1.4.4 If there are no or insufficient safety provisions in the Laws of the Country, in JSSS or in the Particular Safety Specification for the particular part of the Works, the Contractor shall propose suitable internationally acceptable safety regulations for the Engineer's consent.

1.4.5 Specified Standards

(1) Unless otherwise instructed by the Engineer, a reference to any standard (hereinafter deemed to include specified safety regulations or codes) shall mean a reference to the latest issued edition of that standard as at the Base Date ~~of the Contract~~. (JC6)

JC6: deleted.

(2) ~~Any standard specified in JSSS may be substituted with an equivalent alternative which, unless stated otherwise, shall mean that an alternative is acceptable but only after the Contractor has submitted a formal request with supporting particulars to the Engineer and has obtained the consent of the Engineer who shall give such consent only if, in his opinion, the alternative is internationally acceptable and that it provides an equivalent or higher standard than the standard specified.~~ (JC7)

Standards specified in JSSS can be substituted with an equivalent alternative in following manner;

(a) The Contractor submits a formal request with particulars to the Engineer, and

(b) The Engineer gives a consent to the substitution,

only if he considers such alternative is internationally acceptable and equivalent or higher than the standard in JSSS.

JC7: Non-native にわかりやすく、以下の通りとしてください。

To make for readers to easily understand (2), please replace (2) with the above.

NK: To MD, please review the above though JC comments to directly replace it with the JC sentences.

MD: I cannot comment on what you mean or imply by non-native English. Your suggested alternative text is not really as correct or clear contractually as the original but it is understandable. I can give no other comment.

NK2: No comment.

MD: We have included as instructed, please note that punctuation is inconsietent.

(3) Application of detailed parts of any standards specified in JSSS may be waived at the formal request of the Contractor, only if the Contractor justifies with supporting particulars that those detailed parts are not relevant to the Contract and the Engineer gives his consent to such Contractor's request.

(4) Where JSSS refers to the standards of other countries, such reference is only to the technical requirements contained in such standards and not to any related ~~l~~ Laws (JC8) ~~or~~ legal enforceability (JC9) of any of those ~~other~~ (JC10) ~~countries~~.

JC8: 7）Laws GC 上の定義（Laws は法律・政令、その他を含む広い概念）に鑑み、必要に応じて以下の修正を加えています。

Replaced with Laws (Head capital) as defined in GC.

1.4.5(4) laws to Laws

3.2.3(10) and 6.7.4 Laws and regulations of the Country to Laws of the Country

JC9: Legality?

NK: To MD, please reply to this.

MD: "Legality" means whether the subject is legal or not and is not suitable. "legal enforceability" has a different meaning i.e. the means to ensure that people comply with laws and is correct.

This clause is to cover the use of OSHA for example which is obviously legally enforceable only in USA. We understood that JSSS where so specified is to include the technical requirements of OSHA but not the US laws regarding enforcement penalties and legal action against employers when they do not comply with the law.

NK2: No comment.

JC10: deleted "other".

1.4.6 Where there is any reference to OSHA and unless otherwise evident from the text, the words "team leader", "~~on-site~~ supervisor", "~~on-site~~ supervision", "~~field~~ superintendent", ~~"work chief"~~ and the like shall be collectively construed as reference to the appropriate member of the Contractor's Personnel~~, a~~. Any reference to the "safety and health manager of the Contractor" and the like shall be construed as reference to the HSO and "The construction plan and safety

and health plan", shall be construed as the "Method statement" and "Safety Plan", respectively. (NK1)

NK1A: I asked already those terms last time whether they are used in OSHA, and MD replied they are used in both regulations of OSHA and reference document of OSHA. I checked again those terms in regulations of OSHA and propose to use those used in only regulations of OSHA.
NK1A: MS is added for the construction plan.

MD: We had referred to an older version of OSHA has which been revised since this clause was first drafted. Your changes are appropriate

NK2: No comment.

1.4.7 If any ambiguity or discrepancy is found in or between the various Chapters of JSSS or any reference documents and JSSS, the Engineer shall issue any necessary clarification or instruction. For the purposes of interpretation:

(1) The requirements of *JSSS ~~Chapter~~* 1: General Requirements, shall prevail over the requirements of other Chapters of the document.

(2) JSSS ~~Chapters~~ 2 to 6 contain requirements which are of general application and the content of each shall apply to content of all others unless otherwise stated or unless the context is otherwise clear.

1.4.8 Unless otherwise stated in JSSS or in the Particular Safety Specification, the ~~The~~ Contractor shall comply with the requirements of JSSS throughout ~~the Time for Completion and the Defects Notification Period~~ the execution of the Contract.

~~Unless otherwise specified in the Particular Safety Specification, the Contractor's obligations to provide temporary services and facilities shall finish at the end of the Time for Completion.~~ (JC11)

JC11: (Japanese)

Time for Completion 及び Defect Notification Period

Time for Completion →until issuance of the Taking-Over Certificate

Defect Notification Period→throughout the execution of the Contract
とそれぞれ修正 Time for Completion、Defect Notification Period で文脈上よいと思われるものもあり、そうしたものはそのままにしてあります。

1.4.8 において、Unless otherwise stated in JSSS or in the Particular Safety Specification, the Contractor shall comply with the requirements of JSSS throughout the execution of the Contract と規定した上で、下記の項目については TOC 発行時点まででよいものとして明記

1.27 Contractor's Safety Committee and Regular Safety Meetings

1.28 Engineer's Regular Safety Meetings

1.29 Project Safety Committee

2.1.7 Monitoring and Record

(English)

Time for Completion and Defect Notification Period

Time for Completion → (revised to) until issuance of the Taking-Over Certificate

Defect Notification Period → (revised to) throughout the execution of the Contract

Revised as above.

Where Time for Completion and Defect Notification Period are necessary in the sentences, they are left as they are

1.4.8 is specified as Unless otherwise stated in JSSS or in the Particular Safety Specification, the Contractor shall comply with the requirements of JSSS throughout the execution of the Contract

The following Chapters are specified till issues of TOC.

1.27 Contractor's Safety Committee and Regular Safety Meetings

1.28 Engineer's Regular Safety Meetings

1.29 Project Safety Committee

2.1.7 Monitoring and Record

1.4.9 The Contractor shall fully inform his personnel, his Subcontractor's, suppliers and ~~sub-~~ consultants and all other parties who are associated with the Works of the existence, content, purpose and objectives of JSSS. (NK2)

NK2: deleted.

1.5 CONTRACTOR'S SAFETY MANAGEMENT SYSTEM

1.5.1 The Contractor shall institute a health and safety management system in accordance with ISO 45001~~ or an equivalent alternative~~. (JC12)

JC12: deleted.

1.5.2 Alternatively, the Contractor may institute his own safety management system and regularly conduct audits in accordance with JSSS 1.17 [*Compliance Monitoring and Auditing*].

1.5.3 The safety management system shall be proposed as a part of the Contractor's Safety Plans to the Engineer for his consent.

1.6 CHECKING AND VALIDATION OF SUBMISSIONS

1.6.1 ~~In accordance with GC 4.9 [*Quality Assurance*] the Contractor shall demonstrate compliance with the Contract by including evidence of his own internal prior review, check and approval or agreement of all submissions including Safety Plans, Method Statements, Temporary Works (such as drawings, designs and calculations) and of all supporting documents, through written confirmation and signature of each of the Contractor's responsible personnel, including for example the Contractor's Representative, HSO, Temporary Works coordination, design and supervision staff and any independent checkers as appropriate.~~ (JC13)

1.6.1 The Contractor shall demonstrate that his internal procedures for checking and validation of all submissions properly function through written confirmation and signature of each of the Contractor's responsible personnel, including for example the Contractor's Representative, HSO, Temporary Works coordination, design and supervision staff and any independent checkers as appropriate. This requirement relates to all submissions for the safety, including Safety Plans, Method Statements, Temporary Works (such as drawings, designs and calculations) and of all supporting documents.

JC13: 例によって文章が長すぎて Non-native に分かりにくいです。

The sentence is too long as well as others for non-native readers to understand.

Replaced with the above.

1.7 CONTRACTOR'S SAFETY PLANS

1.7.1 The Contractor shall prepare Safety Plans for the Works showing the Contractor's proposed health and safety management policies, systems and plans specifically prepared for all parts of the Works, ~~the Site and other places (if any) where the Contractor intends to execute the Works~~. (JC13)

1.7.2 The Safety Plans shall set out or refer to all the health and safety requirements:

(1) That are stated in JSSS.

(2) That comply with the Contractor's health and safety obligations under the Laws of the Country and the Contract.

(3) That are necessary to effect and maintain a healthy and safe working environment for all Contractor's Personnel.

1.7.3 The Contractor shall be required to prepare and submit the Safety Plans principally at three stages:

(1) Bid Stage Safety Plan (Outline Overall Safety Plan).

(2) ~~Commencement Stage~~ Baseline (JC14)Safety Plan (Updated Bid Stage Safety Plan).

JC14: FIDIC では Baseline を使用することが普通。Baseline Safety Plan と呼称
Baseline is generally used in FIDIC. It should be replaced with Baseline Safety Plan.

MD: Please note that there is no such use of "Baseline" in FIDIC.

"baseline" `is normally a reference to programmes, schedules or costs is and whilst probably understandable it does not really have the same meaning.

"Commencement Stage Plan" means one large and comprehensive plan to be submitted at Commencement and before works start. We understood that any further updates for parts (if ever necessary) would be covered by a separate "Particular Safety Plan" for a particular part of the Works. Update and re-issue of the large and comprehensive Commencement Stage Plan during the execution of the Works will be a time-consuming and potentially wasteful task that we did not expect.

The following sub-clause and also references in later Chapters (e.g. JSSS 10.3.1 (2) indicates that it is intended to update the original comprehensive plan which should not be necessary and which we do not recommend. Responsibility for safety could perhaps be compromised if the basic plan is under a revision process that may take months. If it is intended to update the entire plan maybe it is better to describe when and why this this may be necessary.

NK: Baseline programme, schedule, cost 等で使用されています。Safety Plan は、入札時の安全計画が基準ですが、指定とおりへ変更します。
Baseline is used for programme, schedule, cost, etc. Safety Plan should be based on the Bid Stage Safety Plan. NK will replaced it with the term of JC.

MD: Please see above comments and kindly advise of your decision on the name and whether it is to be updated so that we can edit the document and prepare a final clean copy

(3) Particular Safety Plans ~~(Updated separate plans if necessary for particular parts of the Works.~~ (Separate plans or updated Baseline Safety Plan).

MD: please refer to above notes. We do not recommend that this be accomplished by updating the entire basic plan which has already been entirely approved

Please advise as noted above.

NK2: NK propose to leave Commencement Stage Safety Plan as it is. If JICA prefers to use Baseline SP after reading NK's left explanation, NK will specify Baseline in Final JSSS.

MD2: In the clean copy and as an explanation has been given, in the clean copy do we therefore leave all references to the Commencement Stage Safety Plan and also delete the reference to updating?

NK3:We will use Baseline. If JICA want to use the Commencement Stage after our explanation, we will revise in final JSSS.

NK3: I agree to delete updated Baseline Safety Plan. (3) will be Particular Safety Plans (Separate plans if necessary for particular parts of the Works.) ~~(Separate plans or updated Baseline Safety Plan).~~

1.7.4 The Safety Plans shall ultimately provide an accurate and comprehensive description of the Contractor's arrangements to ensure that health and safety management is maintained at a high level.

1.7.5 Submission of any Safety Plan and inclusion in the Bid or Contract or any further submission to the Engineer, shall not place any limit upon the Contractor's obligations. Any additional requirements as determined by the Contract or consequent to instructions of the Engineer or by requirements at the Site, shall be complied with by the Contractor under his own responsibility.

1.7.6 Bid Stage Safety Plan:

(1) This shall be an outline plan, containing indicative content for all of the subjects listed in JSSS Annex 1.2 [*Content of Bid Stage Safety Plan*].

(2) The plan shall demonstrate that the Bidder has a clear understanding of the health and safety requirements for the Works and contain clear and sufficient detail of each item to indicate the Bidder's intentions, so that this can be understood and properly evaluated.

1.7.7 ~~Baseline~~ Safety Plan

(1) This shall be submitted within twenty-eight (28) days after the Commencement Date ~~and not less than twenty-eight (28) days before commencing any work at the Site~~. (JC15) When the Contractor commence any work at the Site before the submission of the Commencement Stage Safety Plan, the Contractor shall submit a part of Commencement Stage Safety Plan specially for the work not less than seven (7) days before commencing the work. (NK2)

JC15:These double limitations are sometimes very difficult or almost impossible to follow. If a contractor intends to erect a flag pole at the site on the commencement day, he must have submitted the Baseline Safety Plan 28 days before the Commencement day.

NK: JC is understandable, so deleted as commented. However, the Contractor will start preparation works such as offices, accommodation, access roads, etc. by Subcontractors locally employed. It is necessary to additionally specify about such preparation works planned before submission of the Baseline Safety plan.

MD: Please refer to FIDIC 2017 GC 4.8 (requirements for safety manual) on which these requirements are based:

"Within 21 days of the Commencement Date and before commencing any construction on the Site"

We had added the second period so that there is defined time allowance for review and response.

By omitting the second precondition, there is now no time limit given for the earliest (and important) submissions which are required before any construction commences even if this does require preparation works before the commencement date.

Whilst the Contractor shall commence the execution of the Works as soon as is reasonably practicable after the Commencement Date, this does not mean that he does not commence preparation works before this date.

NK2: Before the Commencement Date, no Engineer contractually exists, so the Contractor cannot submit his Safety Plan to the Engineer and he cannot review. NK propose to add a sentence for the Contractor to submit a partial Commencement Stage SP as shown above. How do you think?

MD2: The statement that the Engineer does not exist at this time is not correct and may also not be relevant. The Engineer is assumed to exist under FIDIC from the date that the Letter of Acceptance is received by the Contractor (or Contract Agreement is signed) and when the Contract therefore comes into existence. If this were not the case the Engineer could not take all of the actions prescribed for him under the Contract. The Commencement Date is (independently) confirmed by the Engineer sometime later than the Contract is in existence and the Engineer must then be present to independently notify under GC 8.1 that the precedent conditions have all been fulfilled and the Commencement Date can therefore be confirmed by him.

There is no need to add any further wording for this.

NK3: We will delete the latter phrase as commented by JICA and not add my proposes sentence. Regarding the preparation works before submission of Baseline SP, the Engineer will ask the Contractor to submit Particular SP in accordance with JSSS 1.7.9 (2) (b).

(2) This shall be an updated Safety Plan for the whole of the Works showing the Contractor's proposed health and safety management policies, systems and plans etc. specifically prepared for all parts of the Works, ~~the Site and other places (if any) where the Contractor intends to execute the Works.~~ (JC16)

JC16: deleted.

(3) ~~The Baseline Safety Plan~~ This (NK3) shall be based upon the Bid Stage Safety Plan,

further developed as necessary by the HSO to provide a comprehensive overall Safety Plan demonstrating the Contractor's intended compliance with the Contract.

NK3: replaced.

1.7.8 Particular Safety Plans

(1) These shall be prepared as necessary to suit changing circumstances or conditions at the Site, or following the issue of ~~later~~ (JC17)Method Statements, or where considered necessary by the HSO or when required by the Engineer.

JC17: deleted.

1.7.9 Procedures for Submission and Review

(1) The Contractor shall submit the Baseline Safety Plan and the Particular Safety Plans showing details of the health and safety arrangements which the Contractor proposes to adopt for the execution of the Works or any part of the Works.

(2) The Contractor shall submit:

(a) ~~the~~ The Baseline Safety Plan in accordance with JSSS 1.7.7 [*Baseline Safety Plan*]; and

(b) The Particular Safety Plans by the date fourteen (14) days prior to the commencement of each particular part of the Works where sufficient detail has not been included in the Baseline Safety Plan and/or within fourteen (14) days after the date of the Engineer's request.

(3) Requirements for response (if any) by the Engineer and any re-submission by the Contractor and, shall be as follows:

(a) The Engineer may review the Safety Plans and may give notice of non-compliance to the Contractor stating the extent to which the Safety Plan does not comply with the Contract. Within fourteen (14) days after receiving any such notice the Contractor shall rectify any non-compliance and resubmit to the Engineer;

(b) If the Engineer gives no such notice of non-compliance for the original Safety Plan within twenty-one (21) days of the date of receipt or for the resubmitted within fourteen (14) days of receipt, the Contractor shall proceed in accordance with the Safety Plan subject to complying with his other obligations under the Contract; and

~~(c) For Contractor resubmissions following receipt of a notice of non-compliance, the Engineer may give notice to the Contractor stating the extent to which the resubmission does not comply with the Contract. Within fourteen (14) days after receiving this notice the Contractor shall rectify such non-compliance. If the Engineer gives no further notice of non-compliance within fourteen (14) days of the date of receipt of the resubmission, the Contractor shall proceed in accordance with the resubmitted Safety Plan subject to his other obligations under the Contract.~~ (JC18)

JC18: deleted.

~~1.7.10 The Contractor shall, as stated in JSSS and as the Engineer may reasonably require, maintain records and make reports in compliance with the applicable health and safety regulations and Laws) concerning the health and safety of any persons entitled to be on the Site.~~

The Contractor shall maintain records and make reports in accordance with JSSS and the applicable health and safety regulations, and further comply with any reasonable requests by the Engineer (if any). (JC 19)

JC19: revised.

1.7.11 Compliance with the Safety Plan and JSSS shall not relieve the Contractor from any duty, obligation or responsibility under or in connection with the Contract.

1.7.12 The Contractor shall also consider the opinions of his workers (JC20) ~~and other Contractor's Personnel~~ (JC21) in preparing Safety Plans or updated Safety Plans.

JC20: How about to change these to "take consideration of the opinions of his workers in …"?
NK: To Md, review this proposal.

MD: Your suggested alternative text is suitable.

NK2: No comment.
JC21: deleted.

1.8 RISK ASSESSMENT

1.8.1 In performing risk assessments, the Contractor shall find and correct all potential risks and hazards primarily by trying to eliminate or reduce such risks and hazards through making feasible changes in working conditions rather than relying on PPE.

1.8.2 The Contractor shall fully inform ~~all~~ (JC22) Contractor's Personnel of all hazards and risks on the Site.

JC22: deleted.

1.8.3 The procedural flow of risk assessment shall be as follows.

(1) Identifying hazards.

(2) Evaluating risks.

(3) Determining measures of risk reduction or elimination.

1.8.4 The procedural flow for risk reduction measures shall be as follows with earlier listed items having higher priority:

(1) Removal of hazards such as eliminating dangerous methods of construction.

(2) Changing to a safer construction method and alternating to low risk processes, operations, materials or equipment.

(3) Engineering measures.

(4) Management measures including improving skills with additional training.

(5) Use of PPE.

1.9 CONTRACTOR'S METHOD STATEMENTS

1.9.1 The Contractor shall prepare Method Statements for all parts of the Works with details of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works ~~and any parts of the Works~~. (JC23)

JC23: deleted.

1.9.2 Method Statements shall be developed taking account of the results of risk assessment in accordance with JSSS 1.8 [*Risk Assessment*] and include details of all Permanent Works and Temporary Works with supporting documents such as:

(1) Studies, investigations and designs.

(2) Structural calculations and any other calculations.

(3) Specifications and technical details.

(4) Proposed construction procedure, sequence and method.

(5) Construction resources including superintendents, workers, Operation Leaders and Contractor's Equipment.

(6) Inspection and monitoring plan.

1.9.3 ~~The preparation of Method Statements shall indicate that the Contractor has put~~ The Contractor

shall demonstrate in the Method Statements that he has put (JC24) internal procedures in place to encourage the systematic approach to performing the Works ~~and~~ (NK4) in an efficient, safe and environmentally compliant manner.

JC24:revised.
NK4: deleted. To MD, please review this.

MD: the original text with "and" is correct, your suggested alteration is not quite correct but also acceptable. The Contractor must have procedures in place to demonstrate that he will adopt a systematic approach to work performance **and** also that he will accomplish such work in an efficient, safe and environmentally compliant manner.

NK2: No comment.

MD2: we will assume therefore that the proposed JICA text will remain as is.

NK3: no comment.

1.9.1 ~~Whenever required by the Engineer, the~~ The Contractor shall submit Method Statements showing details of the arrangements and methods which the Contractor proposes to adopt for the execution of any part of the Works. ~~The Contractor shall submit the requested information within fourteen (14) days of the date of the Engineer's request.~~ Whenever the Engineer requires further information, the Contractor shall submit the required information within fourteen (14) days of the request. (JC25)

JC25:revised.

Requirements for submission by Contractor and response (if any) by the Engineer to Method Statements, shall be as follows:

(1) The Engineer ~~may~~ reviews the Method Statements and ~~may~~ gives (JC26)notice of non-compliance to the Contractor stating the extent to which the Method Statements do not comply with the Contract. Within fourteen (14) days after receiving any such notice the Contractor shall rectify any non-compliance and resubmit to the Engineer.

JC26:revised.
NK: This "may" is most important and essential part in JSSS as seriously discussed between JICA and NK.
1.7.9 (3) specifies (a) The Engineer may review the Safety Plans and may give notice … 1.9.4 (1) shall be same as 1.7.9.
To MD, please review NK opinion.

MD: I agree with NK comment. As we have discussed before, the use of "may" is intentional and an important requirement. It is optional and review and response should remain at the discretion of the Engineer, similar for example to programmes. See also FIDIC 2017 Clause 4.9.1 Quality Management System where "may is also used.

Preparation of method statements under GC 4.1 should remain as a general obligation of the Contractor (as and when requested by the Engineer) with no stipulated requirements for review or response by the Engineer, hence "may".

NK2: NK insist to use "may".
MD2: Agreed

(2) If the Engineer gives no such notice of non-compliance for the original Method Statement within twenty-one (21) days of the date of receipt or for the resubmitted within fourteen (14) days of receipt, the Contractor shall proceed in accordance with the Method Statement ~~subject to complying with his other obligations under the Contract~~. (JC27)

JC27:deleted.

~~(3) For Contractor resubmissions following receipt of a notice of non-compliance, the Engineer may give notice to the Contractor stating the extent to which the resubmission does not comply with the Contract. Within fourteen (14) days after receiving this notice the Contractor shall rectify such non-compliance. If the Engineer gives no further notice of non-compliance within fourteen (14) days of the date of receipt of the resubmission,~~

~~the Contractor shall proceed in accordance with the resubmitted Method Statement subject to his other obligations under the Contract.~~ (JC28)

JC28: deleted (3).

(4) The Contractor shall submit a revised Method Statement whenever required by the Engineer or when any previous Method Statement for any part of the Works is inconsistent with actual conditions or requirements prevailing at the Site.

(5) The Method Statement shall be revised as necessary by the Contractor or the HSO and each revision shall be submitted promptly to the Engineer.

1.10 ENGINEER'S SAFETY REPRESENTATIVE

1.10.1 The Engineer may delegate his power and authority to any of his assistants at the Site who shall act as the Engineer's health and safety representative for the purpose of complying with any health and safety obligations under JSSS.

1.10.2 The terms of the appointment shall be in accordance with GC 3.2 [*Delegation by the Engineer*].

1.10.3 Whenever the term "Engineer" is used in JSSS this shall be deemed to include the resident engineer or any other assistant of the Engineer if so appointed in accordance with the terms of their delegated authority.

1.11 SAFETY COMPLIANCE INSTRUCTIONS FROM THE ENGINEER

1.11.1 Without affecting or diminishing the Contractor's responsibility under GC 4.1 [*Contractor's General Obligations*] and to ensure the adequacy, stability and safety of all Site operations and of all methods of construction, the Engineer shall observe the Contractor's performance at the Site and if in his opinion the Contractor is failing or has failed to carry out any part of the Works in accordance with the Safety Plan or other health and safety requirements of the Contract, the Engineer may give notice and instruct the Contractor to take necessary corrective and preventive measures to comply with the Contract.

1.11.2 If any part of the Works is considered by the Engineer to pose a danger and which in his opinion could result in an accident, the Engineer may instruct the Contractor to suspend such part of the Works under GC 8.8 [*Suspension of Work*] until the Contractor has advised the Engineer of the proposed corrective and preventive measures, obtained the Engineer's consent and implemented such measures to ensure that ~~no further risk exists~~ such danger is eliminated. (JC29)

JC29: no risk: Risk は消えることはないので、no risk とは言えない。to prevent ….といった表現に適宜修正しています。以下が関連条項。4.3.13, 4.5.1(3), 6.7.7(5), 6.8.4(2), 6.8.4(3), 7.6.2 (1), 10.6.2(5)

Because "risk" will not disappear, it cannot say to no risk. The expression is modified "to prevent…" as appropriate at the following relevant clauses: 4.3.13, 4.5.1(3), 6.7.7(5), 6.8.4(2), 6.8.4(3), 7.6.2 (1), 10.6.2(5)

1.11.3 If an accident has occurred, the Engineer may instruct the Contractor to suspend the Works or any part of the Works under GC 8.8 [*Suspension of Work*] and not allow resuming ~~w~~ Works ~~to recommence~~ (JC30) until such time as:

JC30: modified.

MD: The modification is not correct grammatically; the original wording is correct.

NK2: NK inform to leave as original.

(1) The cause has been investigated and established (JC31) by the Contractor.

JC31: Is this term appropriate?
NK: MD will reply.

MD: Yes, it is appropriate, it is necessary to establish the cause (meaning to discover, prove, or decide upon the true cause) before proceeding.

As there is difficulty it may be better to stay:

(1) All circumstances have been investigated and the cause of the accident has been established by the HSO.

NK2: We will propose your new sentence above.

(2) Corrective and preventive measures have been formulated by the HSO and proposed to the Engineer.

MD: Suggest that HSO would be better/

NK2: agreed.

(3) The Engineer's consent has been obtained for such measures.

(4) The measures have been implemented to ensure that no such accident can (JC32) reoccur.

JC32: May?
NK: MD will reply.

MD: "Can" is correct

NK2: No commnet:

MD2: we will assume that "can" remains

1.11.4 The actions arising as above ~~irrespective of the issue of any action or instruction by the Engineer~~, shall be deemed to be the responsibility of the Contractor irrespective of the issue of any action or instruction by the Engineer. (JC33)

JC33: modified.

1.12 HEALTH AND SAFETY OFFICER AT THE SITE (HSO)

1.12.1 ~~For the purposes of interpretation under JSSS, the reference to "accident prevention officer at the Site" in GC 6.7[*Health and Safety*], shall be construed as "Health and Safety Officer at the Site".~~ (JC34)

JC34: deleted.

1.12.2 Requirements for the HSO:

(1) The Contractor shall assign the HSO ~~upon~~ at the Site ~~of the Works~~, (JC35) on or before the Commencement Date.

JC35: modified.

(2) The Contractor shall ensure that the Contractor's Personnel respect instructions issued by HSO in the health and safety aspects. (JC36)

JC36:added.

(2) (3) If the named person is for any reason unavailable or if the appointed person fails to act as HSO and is removed from the Site ~~of the Works under GC 6.9 [*Contractor's Personnel*], or if the person resigns and/or leaves the employment of the Contractor at the Site,~~ the Contractor shall submit the name and particulars of a suitable and equally experienced and qualified replacement to the Engineer for his consent. (JC37)

JC37: deleted.

(3) (4) The HSO shall be an employee of the Contractor or a specialist health and safety consultant and unless otherwise specified in the Particular Safety Specification, the HSO shall be assigned full time upon the Works ~~and responsibilities, authority and duties shall be in accordance with GC 6.7 [*Health and Safety*].~~ (JC38)

JC38: deleted.

(4) (5) The Contractor shall not revoke the appointment of the HSO or appoint a replacement

without the prior consent of the Engineer.

~~(5) The HSO shall possess appropriate educational qualification for such position and also (if so required by the Laws of the Country) shall be licensed or registered in the Country and perform such duties as are legally mandated.~~ (JC39)

(7) The HSO shall possess appropriate educational qualification for such position and (if so required by the Laws of the Country) shall be licensed or registered in the Country and perform such duties as are legally mandated.

JC39: modified.

(6) (6) The HSO shall, where possible, be fluent in the ruling language of the Contract and also the language for communications stated in the Contract as defined in GC 1.4 [*Law and Language*]~~, i~~. It (NK5) is acceptable for the HSO to use a translator for either or both of these languages.

NK5. Revised. MD, please review this.
MD: Revision is fine.
NK2: OK.

(7) (8) Where there is no ~~legal~~ requirement under the Laws of the Country ~~and unless otherwise specified in the Particular Safety Specification~~, the HSO shall have appropriate academic, educational or vocational qualification such as: (JC40)

JC40: deleted.

(a) an International Diploma issued by the National Examination Board in Occupational Safety and Health (NEBOSH) in UK; or

(b) a ~~C~~ certification (JC41) as a Certified Safety Professional~~s~~ (CSP) by the Board of Certified Safety Professionals (BCSP) in USA; or

JC41: modified.

(c) an equivalent alternative internationally recognised qualification covering health and safety and risk management.

(8) ~~(9)~~ Unless otherwise specified in the Particular Safety Specification, the HSO shall ~~also~~ have minimum five (5) years' work experience in the construction industry of which minimum two (2) years shall be in health and safety management.

(9) The HSO shall be a person that the Contractor considers is qualified, experienced and able to perform the duties competently and subject to receiving the consent of the Engineer.

1.12.3 Supporting Personnel

(1) The Contractor shall also appoint such further supporting personnel as the HSO may from time to time deem necessary or as may be instructed by the Engineer, to permit the HSO to perform his duties.

(2) Such further supporting personnel may include Operation Leaders and/or other senior specialist and qualified Contractor's Personnel.

(3) Irrespective of any such appointment the HSO shall remain singularly responsible for the actions of such supporting personnel in terms of health and safety management.

(4) Any reference in JSSS to the HSO performing inspections or the like for the health and safety aspects of any parts of the Works, shall be understood to include any inspections performed by any of these supporting personnel on behalf of the HSO and for which the HSO shall remain responsible.

(5) The HSO shall prepare an internal procedure for the management of his supporting personnel, to ensure that:

(a) Supporting personnel are made aware of the requirements for any inspection and the details thereof;

(b) Supporting personnel immediately advise the HSO of any unsafe conditions with recommendations to prohibit the start or to stop or to change safety practices for the particular work; and

(c) Communications and submissions between HSO and supporting personnel are efficient, timely and clear.

Following implementation and compliance with the above procedure, the HSO shall sign all inspection records as if the inspection has been carried out by the HSO.

(6) Where the Works or any part of the Works is to be performed in shifts or in excess of normal working hours, or over an extensive working area or where major works are being undertaken simultaneously, or like circumstances, the Contractor shall appoint additional qualified supporting personnel for the HSO all as necessary to ensure that the HSO is always able to perform his duties efficiently and effectively and so that health and safety management is not adversely affected.

1.12.4 Inspections

(1) The HSO shall be responsible for ensuring:

(a) That all working areas are inspected on a regular basis (at least once every working day or as otherwise required by JSSS) to detect if any unsafe practices, works or conditions exist and that all required safety measures are in place;

(b) That if such unsafe practices, works or conditions are found to exist, then to immediately issue instructions to all affected persons and immediately implement corrective measures in cooperation with such personnel or if this is not possible then to temporarily stop all construction activity on that part of the Works until such corrective action has been taken; and

(c) That all inspection requirements of JSSS are complied with including the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

(2) Any site inspections attended by the HSO, may also include the attendance of the Engineer at the option of the Engineer.

1.13 HSO - SCOPE OF DUTIES AND AUTHORITY

1.13.1 The HSO shall devote his full time and attention to maintaining health and safety upon the Works and protecting against accidents.

1.13.2 The particular scope of duties and authority of the HSO shall cover (but shall not be limited to) the following:

~~(1) Health and Safety Management Work:~~ (JC42)

JC42: (2)がないので（１）は不要

Because there is no (2), (1) is not necessary.

MD: Therefore renumbered as follows:

NK2: confirmed.

(1) Preparation and submission of Safety Plans, implementation, evaluation, improvement and revision thereof;

(2) Preparation of monthly schedule of health and safety management activities, informing the Contractor's Personnel;

(3) Regular (daily) inspections of the Works at the Site to ensure the Contractor's

compliance with the Safety Plan, ~~Instructions and other measures~~; (JC43)

(4) Temporarily stopping the Works or any part of the Works following any accident or where the HSO considers it unsafe to continue or where there is unsafe behaviour or practices of the Contractor's Personnel or any non-compliance with the Safety Plan ~~Instructions and other measures~~; (JC43)

JC43: deleted.

(5) Temporarily stopping the Works or any part of the Works where the Engineer so instructs in accordance with JSSS 1.11 [Safety Compliance Instructions from the Engineer];

(6) Investigating accidents, establishing cause, formulating and implementing preventive measures to avoid risk and prevent reoccurrence;

(7) Preparing proposals, reporting and consulting with the Engineer, especially when an accident occurs or any risk or hazardous situation is likely;

(8) ~~Appointment of further supporting personnel (refer to JSSS 1.12.3 [Supporting Personnel]); (JC44)~~

JC44: deleted.

(9) Instructing ~~and training~~ (JC45) Operation Leaders in the health and safety aspects of their work including requirements for inspection and confirmation of results to HSO;

JC45: deleted.

(10) Instructing the Contractor's Personnel to take improvement measures for maintaining health and safety and preventing accidents;

(11) Assisting with the selection and assignment of workers and other Contractor's Personnel, including ascertaining the physical and mental health, age and capability in consideration of the nature of work to be carried out;

(12) Planning and implementation of various training and education implementation plans;

(13) Creating and implementing procedures for monitoring and maintaining accident and safety statistics, including fatalities, lost time records and near-miss cases;

(14) Preparing regular internal and external reports on health and safety activities; and

(15) Hazard prediction activity.

1.14 PROCEDURE FOR RESUMING THE WORKS

1.14.1 ~~If the Engineer has issued an instruction under JSSS 1.11 [*Safety Compliance Instructions from the Engineer*] or if the HSO has temporarily stopped the Works or any part of the Works in accordance with JSSS 1.13 [*HSO – Scope of Duties and Authority*]~~ If any part of the Works have been suspended due to safety reason whether the Engineer has instructed a suspension under JSSS 1.11 [Safety compliance Instructions from the Engineer] or otherwise, then, unless otherwise instructed by the Engineer, the procedure for resuming the Works or any part of the Works, shall be as follows:-(JC45)

JC45: revised.
NK: To MD, I cannot read the above, smoothly. Please review it.

MD: The original wording is correct and no change is necessary.

Whilst the Engineer possesses the contractual right to suspend, the Contractor possesses no such right, the HSO can only temporarily stop the Works which is why it was worded in this way. I do not suggest any change.

NK2: NK propose to adopt the original stipulation.
MD2: Agreed, we will leave as is

(1) The Contractor (represented by the HSO) shall investigate and establish the cause,

formulate preventive measures to ensure that the risk is avoided and accident cannot occur/reoccur.

(2) The Contractor (represented by the HSO), shall prepare and submit his proposal describing the investigation, cause and preventive measures to the Engineer.

(3) The Engineer may review the Contractor's proposal and may give notice of non-compliance to the Contractor stating the extent to which the proposal does not comply with the Contract. Within seven (7) days after receiving any such notice the Contractor shall rectify such non-compliance and resubmit to the Engineer.

(4) If the Engineer gives no such notice of non-compliance for the original proposal within seven (7) days of the date of receipt or for the resubmitted proposal within seven (7) days of receipt, the Contractor shall resume the Works or part thereof in accordance with the proposal ~~subject to complying with his other obligations under the Contract.~~ (JC46) by giving three (3) days' notice in writing of the resumption date.

JC46: deleted.

To be proactive, the Engineer may give consent at any stage within the above stated time scales.

(5) The Contractor resumes the Works or part of the Works on the due date.

(6) The Contractor verifies the effectiveness of the preventive measures and informs the Engineer.

(7) The Contractor carries out a risk assessment and revises the Safety Plan and Method Statements as necessary.

1.15 CONTRACTOR'S SAFETY MANAGEMENT ACTIVITIES

1.15.1 The Contractor shall faithfully implement the Safety Plan performing all necessary management activities to ensure total compliance.

1.15.2 In addition to the tasks of the HSO described above, the Contractor's health and safety management activities shall include (but are not limited to):

(1) Overall Safety Management Activities:

(a) ~~Arranging, chairing, attending meetings as described above and other internal Contractor meetings including~~ Instruction on safety matters in the Toolbox Meetings (TBM); (JC47)

(b) ~~Attending~~ p Pre-work meetings, pre-start meetings, schedule meetings and other internal meetings; and (JC47)

JC47: modified.

(c) Monitoring the implementation of the Safety Plan.

(2) Daily Safety Management of Contractor's Personnel:

(a) Instruction and management on health and safety at general morning meetings, pre-work meetings, TBM;

(b) Providing specific advice and instructions to all Contractor's Personnel on their assigned work tasks in advance of starting so that all workers are aware of the requirements of the Method Statements and Safety Plan including work place, scope, methods, ~~safety~~ (NK6) PPE, timing and safety procedures;

NK6: deleted.

(c) Instruction and management of traditional Japanese cleanliness safety campaigns known in Japan as:

5S ACTIVITIES where: Seiri = sorting, Seiton = tidying, Seiso = cleaning, ~~Seiketu~~ Seiketsu (JC48) = cleanliness and Shituke = discipline;

JC48: Seiketsu?

NK: Both are used in Japan. Seiketsu is in Hepburn Roman letters and frequently used in websites, so changed as above.

(d) Instruction and management of safety education and training;

(e) Instruction and management of all safety measures; and

(f) Site Safety Inspections.

1.16 JOINT SITE SAFETY INSPECTIONS

1.16.1 In addition to the HSO's own daily Site Safety Inspections, the HSO shall conduct regular Joint Site Safety Inspections with the Engineer. ~~Respective s~~ Safety staff of the both (JC49) may also attend.

JC49: modified.

MD: Not necessary to modify and the change is not correct.

NK2: NK propose not revise.

1.16.2 Frequency of Joint Site Safety Inspections shall be at least once a week.

1.16.3 Where any safety risks are detected during the inspections, the Contractor shall take immediate action.

1.16.4 The Engineer may be invited or may choose to participate in the Contractor's daily site safety inspections which will then be deemed to be a Joint Site Safety Inspection.

1.16.5 The Contractor shall prepare a report of each Joint Site Safety Inspection and submit this to the Engineer within seven (7) days after the inspection. A further copy shall be included in the Contractor's monthly progress report.

1.17 COMPLIANCE MONITORING AND AUDITING

1.17.1 The HSO shall develop and implement systems to ensure that compliance with the Safety Plan is ensured. Such compliance shall be monitored efficiently and transparently at all times, for which purpose the Contractor shall:

(1) Create checklists for monitoring.

(2) Carry out regular and random inspections.

(3) ~~Monitor failed, unsafe or non-compliant conditions and analyse data to determine what measures are most effective~~ Analyse unsafe or non-compliance conditions and determine the effective measures (JC50) in ensuring safety and minimising accidents.

JC50: modified.

MD: "non-compliance" should be "non-compliant".

NK2: We inform the above "non-compliant".

(4) Create storage and filing systems for the monitoring records.

(5) Copy safety information to the Engineer as may be necessary for the Engineer's file if so requested by the Engineer.

1.17.2 Safety inspections are intended to search for risks and hazards~~.~~ (JC51)which present a threat to safe working.

JC51: deleted.

1.17.3 The Contractor shall also carry out regular health and safety audits, to ascertain if the Contractor's Safety Plan and health and safety management systems are working by focussing

basically on the following five questions:

(1) Does the Safety Plan cover all regulatory and construction industry best practice requirements?

(2) Are the Safety Plan requirements being met?

(3) Is there documented proof of compliance?

(4) Is health and safety training effective?

(5) Is the Contractor's health and safety management system working effectively?

1.17.4 The persons or team designated to conduct the audits should take a fact-finding approach to gather data and members shall be familiar with the Safety Plan and the nature of the Works.

1.17.5 The audit procedures shall be prepared by a senior member of the Contractor's head office health and safety ~~team~~ section (JC52) and shall require the consent of the Engineer.

1.17.6 The audit shall be headed by a senior member of the Contractor's head office health and safety ~~team~~ section (JC52).

JC52: revised.

1.17.7 ~~If so agreed by the Engineer, a~~ Audits (JC53) may be outsourced by the Contractor to a health and safety company subject to obtaining the consent of the Engineer.

1.17.8 The HSO may attend audits but only in an advisory capacity ~~and team members shall not be required or allowed to audit their own work~~. (JC53)

JC53: deleted.

1.17.9 The Contractor shall invite the Engineer to attend in the capacity of a witness ensuring that the audit is being carried out effectively and with a balanced, fair and non-biased approach.

1.17.10 The health and safety audits are primarily to check the effectiveness of the Safety Plan, the Contractor's health and safety personnel and the Contractor's health and safety management systems. The Audits shall not replace the regular health and safety inspections.

1.17.11 The audits shall be conducted at least twice every year and without giving notice to the Contractor's Personnel or others when any audit is to take place.

1.17.12 An audit report shall be prepared by the leader of the audit team, detailing the findings of the team and submitted to the HSO, with a copy to (JC54) the Engineer within seven (7) days after the audit. The report shall be signed by all attendees of the Contractor to certify their agreement to the content and to any recommendations for improvement.

JC54: added.

1.17.13 The HSO shall analyse the findings of the audit, revise the Safety Plan and change health and safety management practices as necessary to ensure the required improvement. The Engineer shall be fully informed of all such revisions and changes.

1.18 PROPER PLACEMENT OF CONTRACTOR'S PERSONNEL

1.18.1 To a varying extent, many types of construction works are inherently dangerous and accordingly the Contractor under his duty of care must ensure that risks arising from all such potential dangers are avoided and Contractor's Personnel consequently protected.

1.18.2 In compliance with GC 6.9 [*Contractor's Personnel*], the Contractor shall assign only those personnel who are appropriately qualified, skilled and experienced in their respective trades or occupations. Contractor's Personnel shall also be suitable and capable of performing the work tasks for which they are selected in consideration of their physical fitness, mental condition, age and capability, all shall be equipped with correct PPE, tools, equipment and safety equipment.

1.18.3 Workers and unskilled workers shall never be assigned to any work on Site on their own, all shall be assigned in groups and each work group must always include an Operation Leader to ensure compliance with the Contractor's safety regulations.

1.18.4 The correct grades and numbers of Contractor's Personnel shall be assigned to respective work tasks and reasonable times and durations and support facilities shall be afforded by the Contractor to promote the safe and effective discharge of duties.

1.18.5 The HSO shall countersign all records to certify his confirmation that each member of the Contractor's Personnel is appropriately qualified, skilled and experienced in their respective trades or occupations prior to their placement. These records shall be made available for inspection by the Engineer.

1.18.6 Suitability of Contractor's Personnel and their work assignment shall be assessed by the Contractor with the assistance of the HSO in consideration of:

(1) Work content and work environment.

(2) Educational or vocational qualifications, practical experience, skill training and eligibility for category, title, rank or position by virtue of their achieved and demonstrated capability.

(3) Physical and mental health condition upon commencement of employment and on a regular basis before daily work starts.

(4) Allocation of an achievable and safe work volume and time.

(5) Allocation of suitable work to older workers and also to workers under 18 in compliance with GC 6.21 [*Child Labour*].

1.18.7 If the Laws of the Country require operating, supervising or management staff or any other Contractor's Personnel to have a licence, particular academic, educational or vocational qualification, diploma, registration or certification for any of their services or operations at Site, the Contractor shall ascertain that all such Contractor's Personnel possess such documents.

1.18.8 The Contractor shall ascertain the authenticity and validity of licenses and all other documentation for Contractor's Personnel and if necessary shall independently test all personnel to ascertain that they do possess sufficient knowledge, academic, educational or vocational qualification, experience and skills.

1.18.9 The Contractor shall implement an identification (ID) pass system whereby all Contractor's Personnel carry ID passes with name, photograph, blood type, official ID number and statement of the skill and position for which the worker is qualified and assigned. This shall be clearly displayed by the person and be available for inspection and validation by the Engineer at all times. If any of the Contractor's Personnel is found not to have such valid ID for the position upon which he is assigned, the Engineer will instruct that person directly to stop work immediately, contact the HSO immediately and instruct that the HSO resolves the situation without delay by immediately removing the offending person from the particular work being undertaken ~~and from the Site~~ (JC53) and assigning a suitable replacement, unless otherwise instructed by the Engineer.

JC53: deleted.

1.19 SAFETY TRAINING GENERALLY

1.19.1 The Contractor shall conduct health and safety education and training for all the Contractor's Personnel.

1.19.2 The Contractor shall describe in the Safety Plan the outline of the health and safety training plans describing participants, time, teaching materials, policy for selecting trainers, etc. In addition, the Contractor shall submit full details of all health and safety training to the Engineer for information before the start of any training.

1.19.3 Training shall be provided free-of-charge to all participants and conducted during normal working hours, all trainees shall be paid their normal wages during training and the Contractor shall bear all necessary associated costs and expenses.

1.19.4 Training shall be provided in a language which the persons to be trained fully understand (i.e. the language of the persons to be trained or the language for communications as defined in GC 1.4 [Law and language] as appropriate.

1.19.5 Training Personnel

(1) Trainers (which description shall include teachers and educators also) can be personnel employed by the Contractor or external trainers for whom the Contractor shall remain responsible, all experienced, academically, educationally or vocationally qualified and (if required by the Laws of the Country), formally registered as trainers, teachers and educators.

(2) All trainers shall be fluent in the language ~~of the persons to be trained~~. to be used in the training. Where necessary, proficient translators familiar with construction safety terms shall be provided by the Contractor. (JC54)

JC54: language of the persons というと第三国人（フィリピン人とか）を考えると複雑になってくる（タガログとか）。

It becomes complicate when we consider language of the persons who are from third countries such as Philippines speaking Tagalog., so modified as above.

(3) In case of absence of availability of suitable ~~personnel~~ trainers (JC55) in the Country, the Contractor shall mobilise personnel from other countries whom the Contractor considers possess the necessary academic, educational or vocational qualification, ability and experience, subject to receiving the advance consent of the Engineer. ~~In such case, proficient translators, familiar with construction safety terms shall be provided by the Contractor where necessary.~~ (JC56)

JC55: Trainer を海外から調達してくるという話ならば、このように修正。そうではなく、作業員一般を海外から調達してくるということならば、Training の話ではない。1.21.2 に関連の記述があるので、この（3）は削除。

In case trainers are mobilized from overseas countries, the modification is as above. If workers are moibilized from overseas countries, (3) is not appreciate and shall be deleted.

JC56: 言語の話は（2）にまとめる. Requirement regarding language is combined in (2).

1.19.6 Records of education and training

The Contractor shall create and maintain records of all trainees, showing full details of training subjects and their capability, achievements etc., and all shall be made available for the inspection of the Engineer.

1.20 SAFETY INDUCTION TRAINING

1.20.1 Safety induction training shall be provided by the Contractor for all Contractor's Personnel, any ~~s~~Subcontractors, suppliers and others for whom he is responsible, ~~including the Employer's Personnel and all other persons who are entitled to be on the Site at the request of the Employer or Engineer~~ and if requested by the Engineer, the Employer's Personnel and/or other persons who are entitled to be on the Site. (JC57)

JC: 57: modified.

MD: Why is the change necessary and what is the meaning of "if requested by the Engineer"? It is now not clear and could be argued that any such request would constitute a variation instruction under GC 13, which would then create an obligation to pay the Contractor additionally for this.

As the Contractor has a defined duty of care under the Contract to "take care for the safety of all persons entitled to be on the Site" (see GC 4.8) the original wording is correct.

As a default, the Contractor should be responsible for providing safety induction training for all persons that are entitled to be on the Site. We do not recommend that the Engineer be involved in this process as this will tend to divide and therefore confuse the Contractor's clear responsibilities.

NK2: NK propose to leave the original sentence.
MD2: Agreed, we will leave as is

1.20.2 The safety induction training shall include classroom based training course and practical on-site demonstration, in which the (JC58) following subjects shall be covered:

JC58: Added.

(1) Responsible persons, chain of command and means of communication.

(2) Use of Contractor's Equipment, small tools and tackle, machinery, Temporary Works, Goods, materials; potential danger and required care.

(3) Working procedures generally.

(4) Inspections before starting and during execution of any work, reporting unsafe working conditions and equipment.

(5) Dangerous Works; (JC59) General rules, locations, posting warning signs, precautions and general working requirements. Refer to JSSS 1.22 [*Dangerous Work*] for additional training requirements.

JC59: deleted.

(6) PPE and other safety devices; use, handling and care, reporting worn, damaged or defective equipment.

(7) Maintaining all working areas in an orderly, tidy and clean condition at all times.

(8) Accidents; action, evacuation and treatment, basic first-response medical aid, reporting.

(9) Firefighting; actions, precautions and control.

(10) Health and safety rules.

(11) Causes and prevention of diseases and conditions which may be injurious to health that may occur in relation to the work concerned.

(12) Emergency Response Plan; evacuation and calling list.

(13) Other related health and safety matters.

~~1.20.3 Practical on-Site demonstrations shall be included.~~ (JC60)

JC60: deleted.

1.21 SKILL TRAINING

1.21.1 The Contractor ~~is reminded of his obligations under GC 6.9 [*Contractor's Personnel*] which require that~~ shall ensure that all Contractor's Personnel shall be appropriately qualified, skilled and experienced in their respective trades or occupations in accordance with JSSS 1.18.2.(JC60)

JC60: revised.

1.21.2 The Contractor is also reminded of his obligations under GC 6.1 [*Engagement of Staff and Labour*] according to which the Contractor is encouraged, to the extent practicable and reasonable, to mobilise the local human resources with appropriate qualifications and experience. However, if the qualified, skilled and experienced Contractor's Personnel required by the Contract is not available in the Country or not available in the numbers or of the standards of for the periods required, the Contractor shall:

(1) Source and assign upon the Works Contractor's Personnel (of at least Operation Leader

and skilled worker status) from other countries, and/or

(2) Recruit candidates in the Country and train them to provide the skill required to properly perform their assignments.

This shall be in numbers and for such periods as are necessary to maintain the required standards of performance, quality, health and safety throughout ~~the Time for Completion and Defect Notification Period~~ the execution of the Contract.. (JC61)

JC61: modified.

(1) The Contractor shall test and qualify such personnel and provide them with formal written confirmation of their training, testing and academic, educational or vocational qualification, with copies provided to the Engineer if so requested by the Engineer.

(2) Outline of such training shall be submitted with the Bid Stage Safety Plan. Details of the training shall be further developed in the Baseline (JC62) Safety Plan and onward. (NK7)

NK7: (1) and (2) are overlapped with 1.21.3 (5) and (6).

(3) Skill ~~t~~ Training (JC62) may be omitted in full or in part for any Contractor's Personnel who, the Contractor has ascertained, hold valid academic, educational or vocational qualification and who are appropriately skilled and experienced in their respective trades or occupations in full compliance with GC 6.9 [*Contractor's Personnel*]. The Contractor shall report the names of any such Contractor's Personnel to the Engineer for his information.

JC62: modified.

MD: Please refer to our earlier report which contains our concerns on this clause.

NK2: NK commented in JC14.

1.21.3 Further Training of Operation Leaders and Skilled Workers

(1) Unless otherwise specified in the Particular Safety Specification and without limiting or changing the Contractor's obligations under the Contract, the Contractor shall be required to select candidates from his local skilled and unskilled workforce that he considers are suitable to act as future Operation Leaders and skilled workers, respectively.

(2) Training of Operation Leaders

(a) The Contractor shall ensure that his personnel work closely with and transfer necessary knowledge and skills via OJT to such candidates to develop their management abilities, skill levels and awareness of international safety and quality standards.

(b) To compliment the OJT, the Contractor shall provide classroom-based training courses and assign qualified instructors to develop the ability, skills and awareness and also to pass on their knowledge in future to their working colleagues and compatriots.

(3) Training of Skilled Workers

(a) The Contractor shall ensure that his personnel work closely with and transfer necessary knowledge and skills via OJT to such candidates to develop their skill levels and awareness of international safety and quality standards.

(b) To compliment the OJT, the Contractor shall provide classroom-based training courses and assign qualified instructors to develop the ability, skills and awareness according to the work and also to pass on their knowledge in future to their working colleagues and compatriots.

(4) The Contractor shall develop the syllabus and teaching hours appropriately and submit details to the Engineer for his information. Wherever appropriate, the syllabus shall also

include health and safety training to an international level of appreciation with a general introduction to OSHA and other applicable international safety standards and regulations. (JC63)

JC63: ユーザーガイドにあった記述から移転。但し全ての trainee に施すことでもないので、必要に応じてという記述にしました.

Moved this sentence from User Guide. However, it is not necessary to all trainees, so added “Wherever appropriate”.

NK: To MD, this sentence is not mandatory, however it seems JICA want to specify it.

MD: I would have no objection to this change.

NK2: No comment.

~~(5) The Contractor shall test and qualify such personnel and provide them with formal written confirmation of their training, testing and academic, educational or vocational qualification, with copies provided to the Engineer if so requested by the Engineer.~~

(6) ~~Outline of such training shall be submitted with the Bid Stage Safety Plan. Details of the training shall be further developed in the Baseline Safety Plan and onward.~~ (NK8)

NK8: deleted because (5) and (6) are with 1.21.2 (1) and (2).

1.21.4 Unless otherwise specified in the Particular Safety Specification, the Contractor shall not bring into the Country for use upon the Works any unqualified, unskilled or inexperienced foreign Contractor’s Personnel.

(1) Up to here, JICA comments are inserted by NK on 2020/7/27.

1.22 DANGEROUS WORK

1.22.1. Examples of Dangerous Work (JC125)

JC125: moved from entire 2.3.3 to 1.22.

For clarity "Dangerous Work" shall ~~also~~ include the following examples

MD: Suggest that "also" is not now necessary here.

Suggest also the addition of "the following examples" to make it non-restrictive.

NK2: no comment.
MD2: We will make appropriate change in the clean copy

(1) The delivery, storage and/or use of harmful, dangerous or explosive materials, chemicals, gases or the like to be used in the Works or for use in or which are the product of the manufacturing or treatment process of the finished Works or in Operational Areas.

(2) Welding work, hot cutting work or demolition work.

(3) Work in areas where Contractor's Personnel are already performing work that may become more hazardous if anyone other than authorised personnel enter, for example Scaffolding erection, use and dismantling, and areas where Contractor's Equipment is operating and the HSO considers there to be a risk of any accident.

(4) Work in areas where very hot or cold objects are being handled and/or the working area itself is extremely hot or cold.

(5) Work in areas where there is potential exposure to harmful radiation or ultrasound.

(6) Work in areas where the concentration of gases, dust and any other dangerous or harmful materials exceed the limits specified in JSSS 2.1 [*Work Environment*].

(7) Work in areas where Permanent Works or Temporary Works have not been performed completely or properly and/or which are therefore unsound, unstable or unsafe.

(8) Work in areas under, within or adjacent to existing buildings, roads, bridges or other structures which are unstable and/or unsafe and which pose risks to safety unless additional support and strengthening measures are implemented.

(9) Work ~~or work~~ in areas which may have been damaged and otherwise rendered dangerous by adverse climatic, natural or seismic conditions.

1.22.2. Particular care shall be taken by the Contractor when performing any Dangerous Work.

1.22.3. Contractor's Personnel who are to perform or be involved at the Site in the performance of Dangerous Work, in addition to the usual safety induction training, shall be given further special training according to the nature of the Dangerous Work upon which they are to be engaged so that they can safely perform such work.

1.22.4. The HSO shall check and certify that each of the trained workers are authorised to be engaged upon particular types of Dangerous Work, by issuing an official permit in accordance with JSSS 1.23 [*Permit to Work System*] that is to be worn conspicuously and be available for validation by the Engineer.

1.22.5. The HSO shall ensure where Dangerous Work is to be performed, that preparatory pre-work inspections are carried out to investigate and assess the work to be performed and ascertain the conditions likely to be encountered. Such inspection work shall be carried out by specially trained personnel. The Contractor shall prepare safety procedures to ensure that any such inspection personnel are not placed at risk because of any unsafe environmental or other adverse or dangerous conditions.

1.22.6. A specially trained Operation Leader shall always be assigned to work full-time with every worker or team of workers engaged upon Dangerous Work.

1.22.7. The Contractor shall train and equip teams of selected workers at the Site for emergency rescue operation in accordance with JSSS 1.24 [*Accident Response Plan*].

1.22.8. The Contractor shall prepare and implement procedures for effective safety control of Dangerous Work. Such procedures may include zoning arrangements whereby different degrees of risk are separately categorised into different levels of requirement. The contents of this shall be included in the Method Statement and Safety Plan.

1.22.9. Signage shall clearly describe the Dangerous Work and state the reasons why the area is dangerous.

1.22.10. For measures for prohibiting entry, methods of demarcation and further definition of Dangerous Work, refer to JSSS 2.3 [*Prohibition of Entry ~~– Dangerous Work~~*]. (JC63)

MD: Section heading description has now been changed throughout JSSS

NK2: no comment.

1.22.11. Hazardous Substances.

(1) If the Contractor during the execution of the Works, encounters and is required by the Particular Safety Specification or instructed by the Engineer to remove any Hazardous Substances (for example: asbestos and similarly dangerous or hazardous materials), the Contractor shall employ suitable specialists that are appropriately and specifically qualified, skilled and experienced in the safe and environmentally acceptable removal and disposal of the Hazardous Substances.

(2) The Contractor shall submit ~~detailed~~ (JC63) Safety Plans and Method Statements with respect to the removal and disposal of the Hazardous Substances to the Engineer in accordance with JSSS 1.7 [*Contractor's Safety Plans*] and JSSS 1.9 [*Contractor's Method Statements*].

JC63: deleted.

1.23 PERMIT TO WORK SYSTEM – DANGEROUS WORK (JC64)

JC64: added.

1.23.1 The Contractor shall prepare and implement a "Permit to Work System" and a description of this shall be included in the Safety Plan.

1.23.2 The system shall be designed to control safety for Dangerous Work.

1.23.3 The system shall ensure that all foreseeable risks have been considered and that the required control measures for safe working have been implemented before any specific work is permitted to proceed.

1.23.4 Permits shall certify that workers are protected when they perform and workers shall sign the permit and register to show that they understand the risks and the precautions necessary.

1.23.5 The HSO shall assess the work and check safety at each stage and manage the Permit to Work System.

1.24 ACCIDENT RESPONSE PLAN

1.24.1 The Contractor shall be responsible for responding to and treating accidents at the Site in an efficient and dedicated manner with the provision of rescue and treatment services using trained personnel with experienced and qualified medical staff and adequate and equipped facilities at the Site.

1.24.2 Medical, first aid and related services and facilities at the Site for accidental injuries shall be made available free of charge to the Contractor's Personnel. If so specified in the Particular Safety Specification, such medical services and facilities shall also be made available free of charge for ~~the family members of the aforementioned~~ other personnel/persons (e.g. the family members of the Contractor's Personnel, Employer's Personnel and their family members).

(JC65)

JC65: modified.

1.24.3 The Contractor shall prepare an Accident Response Plan as a part of the Safety Plan.

1.24.4 The Contractor shall provide the following medical and first aid facilities and services: (NK9)

NK9: added. To MD, please review this.

MD: addition of "services" is appropriate

NK2: no comment.

(1) ~~Deployment of a~~ Appropriate first aid appliances, aids, instruments and medicines.

(2) ~~First aid training, appointment of~~ Trained first aiders ~~and dissemination of information~~.

(3) ~~Type of c~~ Communication facilities and measures for Emergency Response.

(4) Medical facilities on the Site together with ~~description of~~ suitable medical equipment and consumables.

(5) Temporary water and power supply to maintain use during mains supply failure.

(6) Transportation ~~facilities~~ to be provided to efficiently and carefully transport casualties to ~~clinics on Site~~ medical facilities on the Site or hospitals off the Site. (JC66)

(7) Additional facilities specified in the Particular Safety Specification, if any.

MD: above changes are appropriate

NK2: no comment.
JC66: modified.

1.24.5 Where the Site is located at an excessive distance from urban areas and/or where there is a lack of immediate availability of medical services and facilities, or where local health authorities do not exist or are lacking in capability or standard of medical care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site to comply with his obligations as specified in the Particular Safety Specification ~~and as are necessary to fully protect all relevant personnel~~. (JC67)

JC67: added and deleted.

MD: I do not recommend the addition of "medical" or the later deletion. The Contractor has an overriding obligation under the Contract to provide care to all persons that are entitled to be on the site, the deletion now limits this duty to whatever may (or may not) be defined in the Particular Safety Specification, which is not a recommended default.

NK2: We propose to leave as original and wait for JICA decision.

1.24.6 The Contractor shall train selected Contractor's Personnel to perform emergency rescue in a safe manner in the event of any accident. Workers so trained are called upon in the event of any emergency to rescue any person(s) who may become trapped or injured or otherwise affected or incapacitated and ~~to~~ (JC68) provide suitable, specialist and appropriate first aid treatment. They shall be allowed to continue with their normal work when not required for emergency rescue.

1.24.7 Rescue equipment shall include respiratory protective equipment for rescue operations, where the nature of the Works would dictate, safety extraction belts/harnesses/ropes ~~measures~~ (JC68).

1.24.8 ~~If an accident occurs and rescue is required, the Contractor shall prohibit any personnel to engage in rescue activities other than those trained to do so in order to prevent secondary accident.~~ (JC68)

JC68: deleted.

1.24.9 Workers trained for emergency rescue, in addition to normal first aid treatment, shall be trained to perform ~~Cardiopulmonary Resuscitation (~~CPR~~)~~ and also to operate an ~~Automatic External Defibrillator (~~AED~~)~~ in accordance with the requirements of JSSS 2.9 [*PPE and First Aid*]. (JC69)

JC69: added.

MD: Not necessary as already defined in Annex 1.1 Abbreviations.

NK: agreed and explain to JICA.

1.24.10 Adequate first aid equipment and supplies shall in any case be readily available at the Site and as referred to in JSSS 2.9 [*PPE and First Aid*].

1.25 MEASURES AT THE TIME ACCIDENTS OCCUR

1.25.1 When an accident occurs, the HSO shall immediately discontinue the concerned work, inform the Engineer and take all efforts to:

(1) Safely locate and extract casualties.

(2) Provide first aid treatment at the Site.

(3) Implement Secondary accident prevention activities, including:

(a) Preserving the accident site, make safe and ~~prevent anyone interfering or entering~~ prohibit any personnel to engage in rescue activities who are not trained to do so; (JC70)

JC70: modified.

MD: This is not a recommended deletion and modification. These are 2 separate requirements i.e. preservation of site and prohibition of untrained rescuers.

NK2: We accept the modification though it is not as intended.

MD2: We will change in clean copy as required by JICA

Nk3: no comment.

(b) Discontinuing construction work related to or in the vicinity of the accident; and

(c) Implementing any further measures instructed by the Engineer.

1.25.2 Report of Accident Occurrence, Cause, Investigation, Result and Recurrence, Prevention Measures.

(1) At occurrence of any accident, the HSO shall promptly inform the Engineer and thereafter submit details of ~~any~~ the accident within twenty four (24) hours after its occurrence. (JC71)

(2) Having investigated and established the cause of any accident, the HSO shall report the detail and conclusion of the investigation as soon as practicable ~~and in any event no later than 48 hours after its occurrence, or as may be instructed otherwise by the Engineer.~~

(3) The accident report shall include details of the ~~recommended~~ counter-measures to prevent any reoccurrence and shall be in the format included in JSSS Annex 1.3 [*Additional Contractor Forms*]. (JC71)

JC71: deleted and modified.

1.25.3 For resumption of work procedures, refer to JSSS 1.14 [*Procedure for Resuming the Works*].

1.26 EMERGENCY RESPONSE PLAN

1.26.1 To the extent reasonably possible, the Contractor shall keep himself fully informed at all times of likely forecasted climatic conditions, from TV, radio and internet and shall be aware when heavy winds, storms, rainfall or snowfall and electrical storms or other adverse climatic conditions are likely and can be reasonably anticipated.

1.26.2 The Contractor shall take all necessary measures to protect Contractor's Personnel, the Works and all Goods for incorporation therein from injury or damage caused by any such adverse climatic conditions, and to avoid, overcome or lessen the effects to a reasonable extent.

1.26.3 The Contractor shall keep all areas of the Site, free from surface water and ground water at all times and by whatever means are necessary. This shall include all newly exposed ground surfaces, excavated areas and/or excavations for structures, piling, trenches, pits, shafts, tunnels and the like, as necessary to ensure:

(1) The safety of all persons entitled to be on the Site, whether engaged in construction operations or otherwise on or in the vicinity of or adjacent to the Site.

(2) The safety and stability of the Works and Goods.

(3) The safety and stability of all ground surfaces, excavated areas and/or excavations for structures, piling, trenches, pits, shafts, tunnels and the like, to prevent landslides due to surface and/or underground (NK10) water from rainfall and snowmelt, tidal water, ground water and any changes in ground water level, river or stream erosion, human activity and the like.

NK10: added.

MD: No problem.

NK2: no comment.

1.26.4 Where, due to the location of the Site, there is a risk of flooding, earthquake or volcanic activity, the Contractor shall take measures to prevent damage including damage from landslides and consequent injury, damage from such flooding, earthquake or volcanic activity.

Such measures to be implemented shall include:

(1) Avoiding the use of permanent or temporary earth dams, enclosures, containment structures, spoil heaps or the like where the effect of the above described climatic, seismic or volcanic conditions could weaken or destroy such structures and potentially create the consequent risk of danger to all relevant persons, including third parties and property not connected with the Works but potentially affected thereby.

(2) Provision of temporary support to all sides and soffits of excavations or portal of tunnelling of sufficient strength, durability and suitability.

(3) Provision of sufficient temporary drains and drain trenches to assist the flow of water and any further measures to prevent the effect of water entry to the Works, including pumping and provision of power for such measures.

1.26.5 Measures as required by the above shall be described by the Contractor in the Method Statements ~~which may be requested by the Engineer in accordance with GC 4.1 [*Contractor's General Obligations*] and JSSS 1.9 [*Contractor's Method Statements*].~~ (JC72)

JC72: deleted.

1.26.6 The Contractor shall prepare an Emergency Response Plan as a part of the Safety Plan.

1.26.7 The Emergency Response Plan, shall cover:

(1) Evacuation plan, showing evacuation routes and assembly points.

(2) Emergency communication facilities such as telephones, radios, transceivers, loudspeakers, sirens, etc. Such facilities shall be inspected by the HSO and maintained at all times so that they can be utilised in any emergency.

(3) Emergency contact system.

(4) Use of existing and available medical and other related facilities.

(5) Emergency stocks of bottled water, lights, ropes, shovels.

The Contractor shall provide and maintain in a state of readiness such equipment described above, that will remain useable in the case of an emergency. Where applicable sufficient back-up power shall be provided when power may be knocked out, long-life batteries, power generators with fuel capacity to allow long term use and the like.

1.26.8 The emergency contact system shall describe measures for quickly establishing locations~~,~~ and (NK11) methods of contact and a listing of the persons, organisations and departments, that need to be located and contacted in the event of an emergency.

NK11: Is it necessary "and"?

MD: Not really necessary as an "and" follows on the next line but can be added if you prefer

NK2: please add "and".

The list shall be posted in a visible location in the Contractor's Site office with a copy in the Employer's and Engineer's Site offices so that all personnel are informed.

The emergency contact list shall include name(s) of the person(s) responsible for making the contact, relevant contact persons, all with their respective telephone numbers and where relevant their radio contact.

The list shall include contact details and any further relevant information for the following parties, and define the extent to which contact is to be made in accordance with the type of emergency:

(1) Employer's Personnel at the Site and also at their respective head office ~~where different~~.

(2) Relevant government authorities and agencies, administrative agencies, police stations, ambulance and fire stations, and the like.

(3) Contractor's Personnel at the Site and also at the head office ~~where different.~~

(4) Subcontractors personnel and the personnel of any other contractors or suppliers at the Site and also at the head office ~~where different.~~ (NK12)

NK12: Is "where different" necessary?

MD: No, it can be deleted

NK2: no comment.

1.26.9 Unless otherwise specified in the Particular Safety Specification, the Contractor shall conduct Emergency Response training based on the Emergency Response Plan at least every six (6) months, including training all personnel at the Site on evacuation plan and emergency contact system. (JC73)

JC73: revised.

~~MD: Why capitalised as there is no definition?~~

NK2: Emergency Response is defined in A1.1.2 (9). May I know your comment above mean.

MD2: Please Delete my original comment

Details of the training shall be included as a part of the Emergency Response Plan and included with the Safety Plan.

1.26.10 If and when an emergency occurs, the Contractor shall share necessary information amongst prescribed persons on the emergency contact list described above and take appropriate measures including work discontinuation, evacuation of workers, making the Works, all premises and Contractor's Equipment safe, etc., all as circumstances reasonably permit and as instructed by the Engineer.

~~1.26.11 The Contractor shall also allow use of existing medical facilities, ambulances and equipment all as circumstances reasonably permit or as instructed by the Engineer. (NK13)~~

NK13: Is it necessary to mention to whom the Contractor shall allow.

MD: It is probably better to delete this clause as there is no real definition of what emergency services and facilities are to be provided or for whom they are to be provided

NK2: agreed.

~~1.26.12 For further measures and requirements refer to JSSS 2.7 [*Adverse Weather Requirements*].~~ (JC74)

JC74: deleted.

1.27 CONTRACTOR'S SAFETY COMMITTEE AND REGULAR SAFETY MEETINGS

1.27.1 The Contractor shall create an internal Safety Committee to assist with promoting and maintaining effective health and safety management.

1.27.2 Members of the Contractor's Safety Committee shall include:

(1) Contractor's Representative.

(2) HSO.

(3) Medical and first aid staff.

(4) Contractor's senior site staff.

(5) Contractor's head office safety manager (as necessary).

(6) Subcontractors' representatives, health and safety personnel, site staff.

(7) Representative of labour union, if any.

(8) (If necessary) Representatives of the relevant government authorities and agencies.

(9) Any other necessary personnel.

1.27.3 The HSO shall be the ~~chairman~~ chairperson (JC75) of the Safety Committee.

1.27.4 The Contractor shall arrange regular Safety Committee Meetings for the purpose of sharing information regarding health and safety management among the Contractor's Personnel:

(1) Frequency of the meetings: At least once a month (until issue of the Taking-Over Certificate of the entire Works). (JC75)

JC75: modified and added.

(2) Agenda:

(a) Accidents, fatalities, injuries occurred in the previous month and measures to be taken to prevent any reoccurrence;

(b) Monthly or weekly schedule of important health and safety matters;

(c) Feedback on the regular safety, coordination and other meetings with the Engineer;

(d) Safety instructions received from the Engineer;

(e) Items to be coordinated with police, fire department and other related organisations;

(f) Compliance and registration requirements under the Laws of the Country;

(g) Safety and health awards, media attention and the like;

(h) Hazards, safety and health problems identified by any members of the Safety Committee;

(i) Effectiveness of existing Safety Plans and suggestions for revision and improvement; and

(j) Other matters.

1.27.5 Report on the Safety Committee Meetings

The ~~Contractor~~ HSO (JC76) shall prepare a report summarising the concerns raised and conclusions of all items listed in the agenda as above.

A copy of this report shall be submitted to the Engineer within seven (7) days after the meeting and a further copy shall be included in the Contractor's monthly progress report.

JC76: revised.

1.28 ENGINEER'S REGULAR SAFETY MEETINGS

1.28.1 The Engineer will arrange and host a regular safety meeting to be attended by representatives of the Employer and the Contractor for the purpose of sharing information regarding health and safety management among the representatives of the Employer and the Contractor. Parties present shall have the authority to represent the organisation they belong to on health and safety matters:

(1) Frequency of the meetings: Once a month (until issue of the Taking-Over Certificate of the entire Works). (JC77).

JC77: added.

(2) Agenda:

(a) Effectiveness of existing Safety Plans and suggestions for revision and improvement;

(b) Monthly or weekly schedule of important health and safety matters;

(c) Accidents, fatalities, injuries in the previous month and measures to be taken to prevent any reoccurrence;

(d) Hazards, safety and health problems identified by any members of the Safety Committee;

(e) Status of resolution of previous problems;

(f) Items to be coordinated with police, fire department and other related organisations;

(g) Compliance and registration requirements under the Laws of the Country; and

(h) Safety and health awards, media attention and the like.

1.28.2 Report on the Engineer's Regular Safety Meetings:

(1) The Engineer shall prepare a report summarising the concerns raised and conclusions of all items listed in the agenda as above.

(2) A copy of this report shall be submitted to the Contractor and Employer within seven (7) days after the meetings.

(3) A further copy shall be included in the Engineer's Monthly Report submitted to the Employer.

(4) The Contractor shall act immediately upon any oral instruction which is a consequence of the Contractor's failure to comply with his obligations under the Contract.

(5) The Engineer shall issue a formal instruction for any variation requests.

1.29 PROJECT SAFETY COMMITTEE

1.29.1 On larger Projects with multiple contract packages, if so stated in the Particular Safety Specification, ~~and contractors and unless otherwise stated in the Particular Safety Specification for those Projects,~~ the Employer shall create a Project Safety Committee for the purpose of ensuring mutual understanding and effective implementation of health and safety management

~~throughout~~ of the entire Project ~~team~~. (JC78)

1.29.2 Unless otherwise agreed, the members of the Project Safety Committee shall include:

(1) The Employer.

(2) The Engineer(s).

(3) The Contractor's Representative(s). and HSO.

(4) Representatives and health and safety officers of all ~~members~~ contractors. (NK13)

NK13: altered.

~~1.29.3~~ The ~~Chairman~~ chairperson of the Safety Committee shall be the Employer. (JC78)

1.29.4 ~~The Employer shall hold Project Safety Committee meetings, periodically as requested by the Employer.~~ The Project Safety Committee meetings periodically takes place as requested by the Employer. The Contractor shall participate in the same whenever requested by the Employer until issue of the Taking-Over Certificate of the entire Works. (JC78)

1.29.5 The Employer shall prepare a report summarising the concerns raised and conclusions of all items discussed at the Project Safety Committee Meeting.

JC78: modified.

1.30 HEALTH AND SAFETY COORDINATION WITH OTHER CONTRACTORS

1.30.1 Refer to GC 2.3 [*Employer's Personnel*] and GC 4.6 [*Co-operation*] regarding the respective obligations and requirements for the Contractor regarding cooperation with:

(1) The Employer's Personnel.,

(2) Any other contractors employed by the Employer,

(3) The personnel of any relevant authorities~~, who may be employed in the execution on or near the Site of any work not included in the Contract~~. (JC79)

MD: Why delete the above? It is a requirement of GC 4,6 from which the above is quoted.

NK2: I guess the deleted part is specified in GC4.6, so without this sentence, the personnel in (3) can be restricted to those as GC4.6.

MD2: We will change in clean copy as required by JICA

NK3: no comment.

In relation to the above, the Employer shall ensure that all of the above personnel and contractors co-operate with the Contractor's efforts and that they take actions similar to those that the Contractor is required to take under relevant parts of GC 4.8 [*Safety Procedures*] and GC 4.18 [*Protection of the Environment*].

The Contractor shall provide sufficient information to the Employer who shall then ensure that all of the above personnel and contractors are fully informed of the Contractor's Safety Plan and that their personnel comply with the Contractor's Safety Plan.

When preparing the Safety Plan, the Contractor shall identify the hazards and assess the risks of all aspects. To do this properly, information (including Method Statements, risk assessments and safety plans) may be needed from other contractors who will be working at the Site. The Employer shall therefore ensure that the Contractor is provided with all such other information as ~~is~~ may be requested by the Contractor necessary so that this can be incorporated into the Safety Plan. ~~The Employer will also ensure that the Contractor is able to contact such other contractors and liaise with them on matters of health and safety.~~ (JC79)

JC79: deleted and modified.

When risks arise because of potential interactions between the Contractor and other personnel or contractors (e.g. site transport matters) or a number of contractors are exposed to a common

risk (e.g. from the site electrical distribution system), the Employer shall instruct these other contractors to adopt the same principles of risk prevention and control that are applied by the Contractor unless otherwise agreed.

1.30.2 ~~The Particular Safety Specification shall clearly describe any works for which the Employer is proposing to employ other contractors and any parts of the Site where the Employer's Personnel will be working together with a clear description of such works and the location, timing and other conditions for such works.~~ (JC80)

JC80: deleted.

1.30.3 If any other contractors are employed by the Employer ~~or if any relevant authorities responsible to the Employer~~ and are working on or near the Site of any work, the ~~Engineer~~ Employer shall arrange and host Health and Safety Coordination Meetings: (JC81)

JC81: deleted and replaced.

(1) Frequency of the meetings: as and when considered necessary by Engineer.

(2) Unless otherwise agreed, attendees shall include representatives of the Employer, Contractor and any other contractors employed by the Employer and relevant authorities who ~~may be employed in~~ are concerned with the execution of any work on or near the Site not included in the Contract (JC82)

JC82: deleted and replaced.

(3) Agenda should relate to coordination among different contractors including for example:

(a) Effectiveness of existing Safety Plans and suggestions for revision and improvement;

(b) Issues, problems and response due to the mutual impact of the work of the Contractor, Employer's Personnel, the Employer's other contractors and the works of any relevant authorities;

(c) Accidents, injuries in the previous period and measures to be taken to prevent any reoccurrence;

(d) Status of resolution of previous problems;

(e) Items to be coordinated with police, fire department and other ~~related organisations~~ relevant authorities; (JC83)

JC83: modified.
MD: Please note that these are not "relevant authorities" under the definition in Clause 1.2.2 (7) and which are covered by (b) above.
NK2: agreed and explain it to JICA.

(f) Compliance and registration requirements under the Laws of the Country;

(g) Safety and health awards, media attention and the like; and

(h) Other matters.

1.30.4 Report on the Health and Safety Coordination Meetings:

(1) The ~~Engineer~~ Employer shall prepare a report summarising the concerns raised and conclusions of all items listed in the agenda as above.

(2) This report shall be submitted to the Engineer, ~~Employer,~~ Contractor and other attendees within seven (7) days after the meeting. (JC84)

(3) A further copy shall be included in the Contractor's monthly progress report.

JC84: modified.

1.31 SAFETY STATISTICS

1.31.1 The Contractor shall collect and compile statistical data for safety performance on the Works in order to permit monitoring of achievement and prevention of reoccurrence of accidents, near-misses and the like, therefore contributing to the improvement of safety on the Works.

1.31.2 Actual statistics shall include the following:

(1) Accident: description, casualties, location, time, type and cause.

(2) Near-miss: description, location, time, type and cause.

(3) Lost-time: lost hours of casualties, duration of discontinuation.

(4) Total working hours for calculation of frequency rate, severity rate and annual incident rate.

(5) Number of users of the first aid station, number of people treated for disease/injury, description of disease/injury, causes.

(6) Number of health and safety staff.

(7) Number of candidates given safety induction and other training.

(8) Number of safety inspections,

(9) Number of detections of non-compliant, unsafe or lack of Contractor's Equipment.

(10) Number of instructions issued for failure to use PPE, or inadequate or ineffective PPE.

(11) Number of Engineer's Instructions issued for work suspension.

(12) Number of HSO instructions issued for work stoppage.

(13) Others.

1.31.3 All data shall be in a format and content given consent by the Engineer.

1.31.4 ~~The statistical results shall be prepared and submitted in the Daily Safety Report to the Engineer for validation and mutual agreement.~~ (JC85)

JC 85: deleted.
NK: We understood this deletion is made because it is stipulated in 1.33.1 (1).

MD: Understood.

NK2: no comment.

1.31.5 The data shall subsequently be compiled and included in the Contractor's Monthly Safety Report to be submitted under JSSS 1.33 [*Safety Reports*].

1.32 HEALTH AND SAFETY RECORDS

1.32.1 The Contractor shall keep health and safety records for the following:

(1) Inspection records and checklists.

(2) Meetings for safety and health management.

(3) Monitoring of safety and health management activities.

(4) Health and safety education and training for the Contractor's Personnel.

(5) Health management for the Contractor's Personnel, documents regarding workers' health conditions (such as medical history and medical examination results) shall be stored in compliance with the Laws of the Country.

(6) Work environment records and other records required by JSSS ~~Chapter~~ 2 [*General Safety Measures*] and other parts of JSSS.

(7) Record of reports as may be required by government authorities.

(8) Detection of non-compliant, unsafe or lack of Contractor's Equipment.

(9) Instructions issued for unsafe behaviour or unsafe site conditions.

(10) Instructions issued for failure to use PPE, or inadequate or ineffective PPE.

(11) Engineer's Instructions issued for work suspension.

(12) HSO instructions issued for work stoppage.

(13) Others.

1.32.2 All records shall be in a format and content given consent by the Engineer and all shall be made available for inspection by the Engineer.

1.32.3 A summary of the above records shall be submitted to the Engineer as a part of the Contractor's Monthly Safety Report to be submitted under JSSS 1.33 [*Safety Reports*].

1.33 SAFETY REPORTS

1.33.1 The Contractor shall provide regular safety reports to the Engineer to keep him fully informed of compliance with the Safety Plan and all matters of health and safety. Reports shall include:

(1) Daily Safety Report: number of workers ~~at site~~, works in progress (outline), statistical results in accordance with JSSS 1.31.2, (JC86) near-misses/incidents/accidents, safety findings, actions taken~~,~~ for improvement. (NK14)

JC86: deleted and added.
NK14: deleted.

(2) Contractor/HSO and Joint Site Safety Inspection Reports.

(3) Weekly Safety Report: summary of safety matters of the week.

(4) Monthly Safety Report: summary of safety matters for the month, monthly and cumulative safety statistics. The Monthly Safety Report shall be submitted as an attachment to the Contractor's monthly progress report, required by GC 4.21 [*Progress Reports*].

1.34 HEALTH AND SAFETY INCENTIVE SCHEMES

1.34.1 The Contractor shall consistently enforce work rules (whether or not an injury or illness is reported) to demonstrate his commitment to creating a culture of safety, not just the appearance of reducing rates. Action should not be taken to penalise any worker for reporting a work-related injury or illness rather than for the purpose of promoting workplace safety.

1.34.2 It is considered that incentive schemes are an important tool to promote an improvement in workplace health and safety and the Contractor is therefore required to develop and implement such health and safety incentive schemes.

1.34.3 It is suggested that workers should be rewarded for reporting near-misses or hazards, as this promotes worker involvement in the health and safety management process.

1.34.4 Consideration should also be given to rate-based incentive schemes which concentrate on reducing the number of reported injuries and illnesses by rewarding workers with certification and/or prizes or bonuses at the end of an injury-free period and which also could reward Operation Leaders or managers based on the lack of injuries (JC87) within their respective teams.

JC87: Is this expression correct?

MD: Yes, it could also be "absence of" or "elimination of", if you prefer.

NK2: as mentioned by JICA.

1.34.5 Any scheme must however be implemented in such a manner that it does not discourage reporting by workers, such as taking negative action against a worker by withholding a prize or bonus because of a reported injury.

1.34.6 The Contractor shall introduce adequate precautions to ensure that workers feel free to report an injury or illness.

1.34.7 As an alternative to rate-based ~~achievement~~ incentive (NK15) schemes, incentive schemes that take positive steps to emphasise safety, not just incident rates are often useful such as schemes that reward workers for identifying potentially unsafe, dangerous or hazardous conditions on the Site.

NK15: revised.

MD: Understood

NK2: no comment.

1.34.8 The Contractor shall describe the proposed health and safety incentive scheme in the Safety Plan and shall also inform the Employer and Engineer about the progress and achievement of such schemes through their Monthly Safety Report submitted under JSSS 1.33 [*Safety Reports*].

1.35 CONTRACTOR'S EQUIPMENT, TEMPORARY WORKS, SAFETY EQUIPMENT AND PPE

1.35.1 Contractor's Equipment, Temporary Works, Safety Equipment and PPE to be used upon the Works, (for example electrical systems, welding and cutting equipment, ~~s~~ Scaffolding, (JC88) ~~system~~ (JC89) Formwork and Falsework, etc.) together with all components, systems, materials and equipment, safety equipment and PPE (referred to collectively in this ~~clause~~ ~~Section~~ Clause (JC90) as Contractor's Equipment and Temporary Works), shall be suitable and fit for the purpose for which they are intended.

JC88: There are "Scaffolding" and "scaffolding", "Falsework" and "Falseworks", "Formwork" and "formwork". Please make them consistent in JSSS.
JC89: deleted.
JC90: The naming is considered as follows:

1. Chapter
1.1 Section
1.1.1 Clause
1.1.1(1) Sub-Clause
1.1.1 (1) (a) paragraph

JICA revised as above considering the content. Please review them in JSSS.

MD: "Scaffolding" corrected

"Falsework" corrected

"Formwork" corrected

"Clause" corrected (including this Clause 1.35.1)

"Sub-Clause" corrected

NK2: no comment.

All shall be used in full accordance with the manufacturer's printed instructions or accepted industry practice and shall be used, stored, handled, assembled, erected, installed, maintained and dismantled by qualified, skilled, specially trained and experienced personnel.

1.35.2 The Contractor shall ensure that all items of Contractor's Equipment and Temporary Works for use upon the Works are inspected by the HSO at the required location before the commencement of any operation or use and regularly inspected thereafter to ensure continued compliance with the foregoing. Following any such inspection, all tested items shall be labelled by the Contractor with clear, durable and weatherproof labels confirming the last/current date of inspection, date of next inspection and signed by the HSO, thereby certifying the items as being safe for use.

If the HSO ascertains at any time that any items are not suitable for use, he shall immediately

stop all use of that item, label the item as not being safe for use, stop all work for which that item and any associated items is being used and cease any such work until the situation is corrected by repair, re-testing and certifying. Similarly, the Engineer may issue instructions to stop all use of any item and stop all work for which that item and any associated items is used when it is discovered that the certification is not available or is not currently valid.

1.35.3 The Engineer may also instruct that any Contractor's Equipment and Temporary Works shall be subjected to examination, inspection, measurement or testing, by the Contractor at the expense of the Contractor. The Contractor shall submit the report of such examination, inspection, measurement or testing to the Engineer.

If, as a result, any such Contractor's Equipment and Temporary Works is found to be defective, or otherwise not in accordance with JSSS or the Contract, the Engineer may reject such Contractor's Equipment and Temporary Works by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the defect and ensure by repair/replacement (JC91) as necessary and re-testing that the rejected item(s) complies with the Contract.

JC91: added.

1.35.4 As confirmed in Form JSSS/BSD Bidder's Safety Declaration (refer to JSSS Annex 1.3 [*Additional Contractor Forms*]), the Contractor shall mobilise for use upon the Works:

(1) New and up to date Personal Protective Equipment (PPE) and other safety equipment of an international standard, suitable and fit for the purpose for which it is intended, in full working order, complete with all necessary spare parts and consumables, suitable and safe for use on the Works, all to meet with the consent of the Engineer and in sufficient quantities to allow for replacement in the case of being worn-out, lost or damaged.

(2) New or up to date Contractor's Equipment and Temporary Works, all suitable and fit for the purpose for which it is intended, in full working order, clean, non-polluting, complete with all necessary spare parts and consumables, suitable and safe for use on the Works.

MD: This is instructed to be changed to "recent" in Form JSSS/BSD so it is therefore not consistent. We suggest that this is reviewed and corrected

1.36 HEALTH MATTERS

1.36.1 The Contractor is reminded of his obligations under GC 6.7 [*Health and Safety*] to take all reasonable precautions, at all times to maintain the health of the Contractor's Personnel and ensure that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics. Under other Clauses of the Contract, the Contractor is required to protect the Contractor's Personnel from insect and pest nuisance, and to take other measures to reduce danger to their health.

1.36.2 Healthcare services and facilities at the Site shall be made available free of charge. If so specified in the Particular Safety Specification, such healthcare services and facilities shall also be made available free of charge for ~~the family members of the aforementioned~~ other personnel/persons (e.g. the family members of the Contractor's Personnel, Employer's Personnel and their family members). (JC92)

JC92: revised.

1.36.3 Occupational health care shall be provided by the Contractor and shall include:

(1) Environmental health care with consideration and precautions against asbestos, dust, lead and other metals, gases, hazardous and toxic chemicals, sunlight, engine exhaust emissions, (refer also to JSSS 2.1 [*Working Environment*]).

(2) O~~ccupational health care including~~ Measures against noise, frequent or excessive use of vibrating tools.

(3) Avoiding frequent or excessive manual handling of loads, stress and fatigue.

(4) Fitness to work based on the ~~examinations, including eyesight, hearing and~~ physical mobility and capability of the Contractor's Personnel. (JC93)

JC93: modified.

1.36.4 The Contractor shall prepare a Health Care Plan as a part of the Safety Plan including, descriptions and where necessary details or quantities of:

(1) Health care staff to be assigned at the Site.

(2) Provision of anti-mosquito measures including nets, medications ~~or inoculations~~ (NK16) and the like in malarial prone areas.

NK16: It is deleted because of no commercially available malaria vaccine as shown in WHO:
https://www.who.int/immunization/research/development/malaria/en/
MD: Understood and agreed

NK2: no comment.

(3) Healthcare services to be provided including lectures and education on health matters.

(4) Healthcare treatment facilities and medicines on the Site together with description of equipment and consumables.

(5) Occupational healthcare proposal.

(6) Temporary water and power supply to maintain use during mains supply failure.

1.36.5 Where the Site is located at an excessive distance from urban areas and/or where there is a lack of immediate availability of healthcare services and facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional healthcare services and facilities at the Site to comply with his obligations as specified in the Particular Safety Specification and as are necessary to fully protect all relevant personnel. (NK17)

NK17: 1.36.5 is same as 1.24.5 except "health care". It seems better to modify to avoid duplication.

MD: I don't quite understand the comment, the clauses may be similar but 1.24.5 is for accidents, this clause 1.36 is for healthcare including welfare and hygiene arrangements.
NK2: understood your explanation and no furthrt comment.

1.36.6 Report of Serious Illness

(1) The Contractor shall inform the Engineer and submit details of any serious illness.

(2) Having investigated and established the cause of any serious illness, the Contractor shall report the detail and conclusion of the investigation as soon as practicable to the Engineer.

(3) The report shall include details of the HSO's recommended counter-measures.

(4) The Engineer is to be consulted on the types of illness for which reports are to be informed.

1.37 DESIGN AND MANAGEMENT OF TEMPORARY WORKS

1.37.1 Unless otherwise specified in the Particular Safety Specification, the Contractor is required to comply with Sections 1 and 2 of BS5975: Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework as management standard with respect to design, erection, use and dismantling of Temporary Works. (JC94)

JC94: added.
NK: We deleted last time, however JC wants again to add them.

MD: Please refer to note (8) in our earlier report to NK dated 29 June 2020.

NK2: We will leave JICA addition because they want to add them.

MD2: We may be misreading this but this appears to incorrect and not logical, why require compliance with only

two of the three sections of the standard when the third section (i.e. falsework - for example prevention of bridge collapse) is as important but not included? This is confused by the mention in the title. Is there a reason for this

We suggest that a further query is included in your report to cover this and also the additional wording as mentioned in our earlier report so that JICA are fully informed.

NK3: BS5975 consists of Section 1 General, Section 2: Procedural control of temporary works and Section 3: Falsework. JSSS 6.1 TW specifies 6.1.14 Compliance Standards, (2) In relation to Temporary Works, the Contractor shall, subject to JSSS 1.4.5 [Specified Standards] also comply with: (a) Section 3: Falsework of BS5975. Therefore, I think the JICA comment seems proper because JSSS 1.37 is specified for design and management of TW and 1.4.5 specifies Sect 3 of BS 5975 for TW (Falsework). I want to leave as commented by JICA.

1.37.2 An alternative standard is acceptable by reference to JSSS ~~1.4.5 [*Compliance with JSSS and Other Regulations*]~~ *[Specified Standards]* (JC94) providing that the proposed alternative also contains equivalent or higher standards for the management of Temporary Works.

JC95: 引用先は 1.4 が正しいと思いますが、念のためご確認下さい。

Please confirm the reference is 1.4 or 1.4.5.

NK: The title of 1.4.5 is Specified Standards. The title is revised.

1.37.3 It is to be noted that Sections 1 and 2 of BS5975 constitutes guidance and recommendations and it is not quoted herein as if it constitutes a specification or an integral part of JSSS. The Contractor shall however justify in writing any course of action that deviates from the recommendations of Sections 1 and 2 of BS5975 and shall submit such justification to the Engineer for his information and consent.

MD: Please refer to note (8) in our earlier report to NK dated 29 June 2020.

NK2: We will leave JICA addition because they want to add them.

MD2: see above note.

NK3: same to the above.

1.37.4 It is to be noted that certain design standards included or referred to in the BS (for example wind loadings), are restricted to use in the United Kingdom, in which case the Contractor shall be assumed to have adopted the design standards applicable in the Country of the Works.

1.37.5 The Contractor shall prepare and implement suitable procedures whereby all Temporary Works staff during the course of their work and on completion shall prepare and sign formal records of all Temporary Works under their management and control, thereby certifying that all has been performed, completed and validated in accordance with Sections 1 and 2 of BS5975. All such records shall be in a format and content subject to the consent of the Engineer and all shall be made available for inspection by the Engineer.

1.37.6 Without affecting the Contractor's responsibilities for design of the Temporary Works, the Engineer shall cooperate with the Contractor's Temporary Works staff and shall provide pertinent information about the design of the Permanent Works which may be of relevance and assistance to the Contractor with the Temporary Works design.

The Contractor shall submit Method Statements for any parts of the Temporary Works (including designs and calculations of Falsework) as may be requested by the Engineer for his review in accordance with JSSS 1.9 [*Contractor's Method Statements*]. If the Engineer chooses to review same, this shall not be construed as a check or validation of the Contractor's design or methods.

The Engineer may review Temporary Works design for those parts which he considers to be of vital importance for safety. The Contractor shall cooperate and work with the Engineer on this task to demonstrate that the Contractor has systems in place to ensure compliance with Sections 1 and 2 of BS 5975 or any other acceptable standard in accordance with JSSS 1.37.2. ~~[*Design and Management of Temporary Works*].~~ (JC95)

JC95: added and deleted.

1.37.7 For further information on monitoring the performance of Temporary Works, refer to JSSS 6.1.3. [*Monitoring the Performance of Temporary Works*].

1.37.8 Irrespective of any legal requirement under the Laws of the Country, all of the Contractor's Temporary Works ~~specialist~~ staff shall have appropriate academic, educational or vocational qualification for Temporary Works coordination, design or supervision as appropriate. Such staff shall also have work experience in construction and in Temporary Works design or supervision as appropriate. The Contractor shall ascertain for himself that all such staff are qualified to perform their duties. (JC96)

JC96: 1.37.5、1.37.6 では単に Temporary Works staff と言っている。
1.37.5 and 1.37.6 stipulate only "Temporary Works staff".

1.38 UNEXPLODED ORDNANCE (UXO)

1.38.1 If there is a possibility that any UXO may exist at the Site, then unless otherwise specified in the Particular Safety Specification, this shall be surveyed and investigated by the Employer and the result of this investigation shall be clearly stated and full information including survey and investigation results shall be provided by the Employer in the Particular Safety Specification.

1.38.2 Unless otherwise specified in the Particular Specification, clearance of UXO shall be undertaken by the Employer and at the cost of the Employer.

1.38.3 Completion of clearance shall be evidenced through the issue by the Employer's specialist remover of a certificate of UXO clearance from the Site. ~~area.~~ Unless otherwise approved by the Engineer, no work shall commence in affected areas of the Site until the receipt of a copy of this certificate.

1.38.4 Should the Contractor encounter any UXO, after a clearance certificate has been issued in accordance with the above, he shall immediately stop all affected work at the affected area of the Site, clear the area of all Contractor's Personnel, Employer's Personnel and all other persons and notify the Engineer and relevant authorities.

1.38.5 Unless otherwise agreed between Employer and Contractor, the Employer shall then make further arrangements for removal and disposal, then obtain and issue a further clearance certificate. Work shall resume in the affected areas after the Contractor has received a copy if the further clearance certificate together with any further instructions from the Engineer.

(2) Up to here, JICA comments and NK modification are inserted by NK on 2020/7/28.

ANNEXES TO CHAPTER 1: GENERAL REQUIREMENTS

Annex 1.1: Definitions and Abbreviations

A1.1.1 The following words and expressions in JSSS relating to the Conditions of Contract and the content of JSSS shall have the definitions stated:

~~(1) "**Executing Agency**" means the representative organisation of a recipient government of the JICA Loan tasked with the responsibility (inter alia) for managing the implementation of the Project including preparation of Bidding Documents and usually defined in the Contract as the Employer.~~(JC97)

JC97: deleted.

(2) "**GC**" ~~and "**PC**"~~ followed immediately by a reference number means respectively General Conditions of Contract ~~and Particular Conditions of Contract,~~ Clause or Sub-Clause. (JC98)

JC98: deleted.
NK: To MD, is it necessary to delete "and Particular Conditions of Contract"?

MD: Yes, can be now deleted as there are no references now to PC.

NK2: no comment.

(3) "**Health and Safety Officer**" or "**HSO**" means the Contractor's health and safety officer at the Site to be appointed by the Contractor in accordance with GC 6. 7 [*Health and Safety*] ~~as construed in accordance with JSSS 1.12 [*Health and Safety Officer at the Site (HSO)*].~~ For the purposes of interpretation under JSSS, the reference to "accident prevention officer at the Site" in GC 6.7 [Health and Safety], shall be construed as "Health and Safety Officer at the Site". (JC99)

(4) "**JICA Standard Safety Specification**" or "**JSSS**" means the document of this title published officially by JICA on their website as may be further modified by the Particular Safety Specification for the Works.

(5) "**Method Statement**" means a document that shows the details of the arrangements, methods and resources that the Contractor proposes to adopt for the execution of the Works or any part of the Works, as referred to in GC 4.1 [*Contractor's General Obligations*] and supplemented by JSSS 1.9 [*Contractor's Method Statements*].

(6) **"Operation Leader" (**also known variously as a "Ganger", "Leading Hand", "Foreman" (working and non-working), "Team Leader", "Superintendent", "Supervisor" and the like) means a member of the Contractor's workforce who through experience, training and testing is deemed by the Contractor to be appropriately qualified, skilled and experienced in their respective trade or occupation to work with, lead and/or supervise the teams of workers, directing them and/or superintending them in the performance of their assigned duties and to ensure their compliance with the Contractor's safety regulations and who can also be referred to within the OSHA definition as a "Competent Person".

(7) "**OSHA**" means the technical requirements of the OSHA standard(s) from the Code of Federal Regulations (29 CFR) published by the Occupational Safety and Health Administration, U.S. Department of Labor.

MD: Changed because not all references in JSSS are to 1926 e.g. Commercial Diving which is 1910.

All references to OSHA have now also been changed to make them simpler and more consistent. See notes against JSSS 2.1.4 (1)

NK2: no comment.

(8) "**Particular Safety Specification**" means the document that contains the particular additions and modifications to JSSS, necessary to create a precise and relevant specification of the health and safety requirements for the Works.

(9) "**Project**" means the particular Works and services to be implemented by the Borrower and described in the loan agreement, utilising the funds provided by JICA under the terms mutually agreed for that purpose.

(10) "**Safety**" shall also mean "occupational health and safety" and "health and safety".

(11) "**Safety Plan**" means a document (or documents) that contains the overall risk assessments together with the details of all health and safety arrangements, methods and resources that the Contractor proposes to adopt for health and safety management of the entire Works or any Section or part of the Works, as referred to in GC 4.1 [*Contractor's General Obligations*] as supplemented by JSSS 1.7 [*Contractor's Safety Plans*].

(12) "**Safety Specification**" means the document that contains Part 1 [*JSSS*] and Part 2 [*Particular Safety Specification*].

MD: Above are rearranged in alphabetical sequence

NK2: no comment.

A1.1.2 The following words and expressions in JSSS relating to the technical content of JSSS shall have the definitions stated:

(1) "**Accident Response**" means the requirements for the Contractor's response to an accident at the Site ~~or Sites~~, as further referred to in JSSS 1.24 [*Accident Response Plan*].

(2) "**Blasting**" means blowing-up or breaking apart solid rock with the use of Explosives.

(3) "**Blasting Exclusion Zone**" means an area from which all unauthorised Contractor's Personnel, unauthorised Employer's Personnel and any other unauthorised personnel or the general public are prohibited to enter due to the risk of their being affected by the Blasting Works. Unauthorised personnel in this context shall have the same meaning as that stated in ~~Section 2.3 [*Prohibition of Entry – Dangerous Work*] Clause~~ JSSS Sub-Clause 2.3.1

MD: Transferred here from Chapter 7 so that all definitions are in one location.

NK2: no comment.

(4) **"Confined Spaces"** means spaces that are not designed for continuous occupation but are provided for persons to enter and perform certain works (including inspection, maintenance and repairs) and that consequently may have limited or restricted means for entry or exit. Due to the likelihood of insufficient ventilation, the Contractor shall be aware of a potentially unhealthy or dangerous environment and he shall be deemed to have investigated and taken measures against such risks in every case.

(5) **"Cofferdam"** means a temporary enclosing wall constructed in water, to permit the enclosed area to be pumped out and used as safe and accessible working space.

(6) **"Dangerous Goods"** means corrosive, flammable, explosive, spontaneously combustible, toxic, oxidising, or water-reactive materials. They must be identified in the workplace (and when being transported) by different coloured 'diamond' symbols. classified on the basis of immediate physical or chemical effects, such as fire, explosion, corrosion and poisoning. An accident involving Dangerous Goods could seriously injure persons and seriously damage property and/or the environment.

(7) **"Dangerous Work"** means Permanent or Temporary Works to be executed by the Contractor in Confined Spaces, Hazardous Areas, or Operational Areas or in the presence of or requiring the use of Hazardous Substances or Dangerous Goods or other work which is especially and potentially dangerous and which requires the use of specialist

skills, safety equipment, safety measures and PPE.

(8) "**Designated Person-in-Charge**" or "**DPIC**" means a senior member of the Diving Team who, through qualification, experience and capability is deemed by the HSO to be qualified to be in charge of all aspects of the Diving Operation including those affecting the safety and health of members of the Dive Team;

(9) "**Dive Safety Plan**" means the Safety Plan prepared for Diving Works in accordance with JSSS 10.2 [*Dive Safety Plans*];

(10) "**Dive Team**" means Divers, support assistants and workboat crew who are involved in any Diving Operation, including the Designated Person-in-Charge;

(11) "**Diver**" means a worker working in water using underwater breathing apparatus which supplies compressed breathing gas at the ambient pressure.

(12) "**Diving Operation**" means one single diving activity for one Diver or a team of Divers commencing from the time when the first Diver enters the water and extending until the last Diver has left the water, chamber or other environment in which the dive, or any part of the dive, took place and has completed any requisite decompression procedures, including, where it may be reasonably anticipated that this will be needed, any therapeutic recompression. The nature and size of any Diving Operation shall be such that it can be safely supervised by one person;

(13) "**Diving Works**" means a part of the Works consisting of one or more Diving Operations~~:~~

MD: Above transferred here from Chapter 10 so that all definitions are in one location.

NK2: no comment.

~~For definition of further terms relating to Diving Works, refer to JSSS Chapter 10 [*Diving Works*].~~

MD: No need, all definitions are here now.

NK2: no comment.

(14) "**Earthwork Support**" means the permanent or temporary structural support arrangements to prevent the collapse or weakening of the surfaces of any excavation including for example basement, pit, trench or slope excavation.

(15) "**Elevated Access Structures**" means the substantial, elevated, temporary working platforms, usually comprised of structural steel columns, beams, framing and floor decking and used for performing Works ~~at Sites~~ with difficult access or with restricted room for construction operations or steeply sloping or offshore Sites.

(16) "**Emergency Response**" means the requirements for the Contractor's response to any Emergency at the Site or Sites, as further referred to in JSSS 1.26 [*Emergency Response Plan*].

(17) "**Explosives**" means any substance or mixture of substances that is manufactured to produce an explosive effect and which term includes any Blasting explosive, Blasting agent and Blasting supplies such as detonators, cords and detonating equipment.

MD: Transferred here from Chapter 7 so that all definitions are in one location.

NK2: no comment.

(18) "**Falling Objects**" means objects falling from heights including displaced, dropped, or blown Goods, tools, debris or waste material.

(19) "**Falsework**" means temporary supporting structures used to support parts of the Temporary Works or Permanent Works during construction, until the latter are stable, self-supporting and safe.

(20) "**Formwork**" means temporary containment structures for ~~in-situ~~ cast-in-place (poured or pumped) concrete and the immediately supporting members in advance of ~~pending~~ the concrete achieving sufficient strength to support its own weight and act safely as a structural component.

MD: Changed so that it is coordinated with Chapter 9.

NK2: no comment.

(21) **"Hazardous Areas"** means areas where there is a risk of explosion due to the presence of flammable or explosive gases, vapours, mists or dusts.

(22) **"Hazardous Substances"** means any substance, whether solid, liquid or gas, that may cause harm to health.

MD: Above are rearranged in alphabetical sequence/

NK2: no comment.

(23) "**Hoisting Equipment**" means Contractor's Equipment such as cranes, hoists, chain-blocks, pulleys and the like which constitute the prime mover that, when used with Rigging Equipment, permits loads to be hoisted or lowered and positioned.

MD: definition above and of Rigging Equipment moved here from Chapter 5

NK2: no comment.

(24) "**Hoisting Operation**" means the selection of Hoisting Equipment appropriate to the purpose, preparation of Method Statements and Safety Plans and safely implementing the hoisting and placing of loads in position.

~~For definition of further terms relating to Hoisting Operations and associated rigging, refer to JSSS Chapter 6 5 [*Hoisting and Rigging*].~~

(25) "**Operational Area**" means an area in a functioning process, treatment, manufacturing or like facility where the Contractor is required to perform ~~Works~~ work (JC100) while the Employer is continuing operations.

JC 100: revised.
NK: Is this revision correct?

MD: Can be either really, it is better to leave it as it is; "Works" is a defined term under the contract whereas "work" which relates to a function or operation, is not.

NK2: I agree to MD's suggestion.

(26) "**Other Properties**" means buildings, structures, ground surfaces and substrata, paved areas, roads, footpaths, fences, railways, waterways, drainage, utilities and other services or the like or any other property on the Site or outside the Site which, ~~where so mentioned in JSSS~~ may be in some way affected by the execution of the Works.

(27) "**Personal Fall Arrest System**" or "**PFAS**" means a fall protection system that is designed to arrest a worker in a fall from a working level.

(28) "**Personal Fall Restraint System**" or "**PFRS**" (also referred to as a "Positioning Device System") means a fall protection system that is designed to restrict the movement of workers, preventing them from reaching the edge of any working area and therefore eliminating the risk of a fall.

(29) "**Personal Protective Equipment**" or "**PPE**" means equipment that is worn by the person to minimise exposure to hazards that cause serious workplace injuries and illnesses, which may result from Falling Objects, excessive noise, dust, contact with chemical, radiological, physical, electrical, mechanical, or other workplace hazards.

(30) "**Rated Capacity**" (referred to occasionally in OSHA and elsewhere as "Safe Working Load") means the maximum load capacity for items of Contractor's Equipment and

Temporary Works, as officially recommended by the manufacturer. The Rated Capacity may be dependent upon the configuration and conditions of use (e.g. length, angle of boom and the like).

(31) "**Rigger**" means a competent person who is certified by the HSO as suitable for assignment to Hoisting and Rigging ~~under this Chapter~~ in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*].

(32) "**Rigging Equipment**" means the ropes, webbing, chains and slings together with all associated accessories such as hooks, hoisting points, shackles, etc. that, when used with Hoisting Equipment, permits loads to be hoisted or lowered, and positioned.

MD: Above transferred here from Chapter 5 so that all definitions are in one location.

NK2: no comment.

(33) "**Safety Belt**" means a sufficiently substantial strap to be secured about the waist for attaching to a lanyard or line to restrain the movement of workers and prevent them from reaching locations from where they may be at risk of falling.

(34) "**Safety Harness**" means a sufficiently substantial harness to be secured about the body for attaching to a lanyard, lifeline and deceleration device to safely arrest and support any worker during a fall.

(35) "**Scaffold**" or "**Scaffolding**" means a temporary structure or structures that provide access on or from which persons work or to support Goods.

(36) "**SCUBA Diving**" means a diving mode independent of surface supply in which the Diver uses open circuit self-contained underwater breathing apparatus;

MD: Above transferred here from Chapter 10 so that all definitions are in one location.

NK2: no comment.

(37) "**Skill Training"** means additional training to be provided by the Contractor for the ~~counterpart~~ Contractor's Personnel to develop and improve their trade skills in performing their work at the Site and shall include OJT and theoretical training in accordance with JSSS 1.21 [*Skill Training*]. Such training shall also include examining and testing by the Contractor and certification of attainment in such skills.

(38) "**Spotter**" means a member of the Contractor's Personnel who is generally responsible for warning other Contractor's and Employer's Personnel and other persons and keeping them away from working operations and areas, for assisting drivers of trucks and operators of ~~other~~ Contractor's Equipment in positioning their vehicles and equipment particularly when reversing, positioning or hoisting, and such further duties as are assigned to them in JSSS ~~Section~~ 2.4 [*Spotters Flagmen and the Like*].

Any reference to a "Spotter" in JSSS shall also be deemed to include a reference to a banksman~~,~~ or flagman ~~or signaller~~.

(39) "**Surface-Supplied Air Diving**" means a diving mode in which the Diver is supplied at the dive location with a piped supply of compressed air for breathing.

MD: Above transferred here from Chapter 10 so that all definitions are in one location.

NK2: no comment.

(40) "**Trade Effluent**" means any liquid waste (effluent) that is discharged from premises being used for a business, trade or industrial process, other than surface water and domestic sewage.

(41) "**Unexploded Ordnance**" or "**UXO**" ~~shall~~ means unexploded bombs, or explosive remnants of war or explosive weapons(such as bombs, shells, grenades, land mines, naval

mines, cluster munition, and the like) that did not explode when they were employed and still pose a risk of detonation, sometimes long after they were used or discarded.

(42) "**Working Platform**" means a platform on or within a ~~s~~ Scaffold that is intended and designed to support persons or Goods. (JC101)

JC101: deleted, added and modifies.

A1.1.3 The following abbreviations of technical terms shall have the meanings stated:

AED	Automatic External Defibrillator
BMGV	Biological Monitoring Guidance Values
CPR	Cardiopulmonary Resuscitation
GFCI	Ground Fault Circuit Interrupter
ODA	Official Development ~~Aid~~ Assistance
OJT	On Job Training
PFAS	Personal Fall Arrest System
PFRS	Personal Fall Restraint System
PPE	Personal Protective Equipment
RCD	Residual Current Device
TBM	Tool Box Meetings
TWA	Time Weighted Average
WEL	Workplace Exposure Limits

MD: Above added here so it is coordinated with Section 6.7.

NK2: no comment.

A1.1.4 The following abbreviations of standards, codes and the like shall have the meanings stated:

ACI	American Concrete Institute
ANSI	American National Standards Institute
ASHTO	American Association of State of Highway Transportation Officials
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials.
BS	British Standard
BS EN	British Standard European Norm
HSE	UK Health and Safety Executive
ISO	International Organization for Standardization
ILO	International Labour Organization
JIS	Japanese Industrial Standards (JC102)

JC102: deleted and modified.

Annex 1.2: Content of Bid Stage Safety Plan

A1.2.1 This Annex lists the required content for the Bid Stage Safety Plan as referred to in JSSS 1.7 [*Contractor's Safety Plans*]. Unless otherwise ~~S~~ specified in the Particular Safety Specification, the Contractor shall follow this format and structure in the Bid Stage Safety Plan. The same format and structure shall be used later for the Baseline Safety Plan but with the content ~~and~~ developed as necessary to show the required detail.

A1.2.2 The Bid Stage Safety Plan shall be an outline plan but it must cover each of the items listed below with sufficient detail provided to demonstrate that the Bidder understands the requirements and indicates the Bidder's intentions, so that this can be understood and properly evaluated.

(1) Description of the Works

A description of the Works supported by overall layout plan(s) to provide a clear understanding of the overall layout and content of the Works and showing main construction items and areas, roads, Site access and egress locations, working areas, storage areas, temporary offices, laydown areas, warehouses and like facilities and including a summary of principal work items and significant quantities, etc.

(2) Bidder's Corporate Policy on Health and Safety Management

A description of the Bidder's corporate health and safety management policy covering the aims and intentions for improving the level of health and safety. The policy shall include a description of the purpose of health and safety (prevention of occupational accidents, maintenance of physical and mental health of workers, etc.), a description of the basic company policies on risk assessment and health and safety management.

(3) Health and Safety Management System, Responsibility and Authority of Bidder's Personnel

A description of the health and safety management organisation at the Site headed by the Bidder's Health and Safety Officer ~~at Site~~ (HSO) and showing the approximate numbers, responsibilities and authority of any other Contractor's Personnel involved in health and safety management at the Site.

A description of the responsibilities and authority of the Bidder's head office health and safety personnel together with the communication procedures for contact and support for the Site safety teams.

(4) Health and Safety Laws

A list of Laws (including all standards) of the Country which require the Bidders compliance for the health and safety of his workers and for the health and safety management of the Works. If the Contractor considers any parts to be superseded by JSSS then the relevant Clause number of JSSS shall be inserted.

(5) Bidder's Safety Management System

Refer to JSSS 1.5 [*Contractor's Safety Management System*]

Describe the scheme that the Bidder is proposing and how he intends to implement same.

(6) Temporary Works

Refer to JSSS 1.37 [*Design and Management of Temporary Works*].

A Safety Plan for Temporary Works listing the principal items, describing the content, and specifying the outline of safety measures to be applied to ensure compliance with the requirements.

(7) Temporary Facilities on Site

The plan shall include a description of the general health and safety rules (e.g. smoking areas, traveling speed on Site, cleanliness, tidiness, latrines, wash rooms, shelters, etc.).

(8) Safety Measures for Contractor's Design of the Permanent Works

If, under GC 4.1 [*Contractor's General Obligations*], the Contract specifies that the Contractor shall design any part of the Permanent Works, the Bidder shall provide a description of the arrangements for controlling risks arising from such design of the Permanent Works.

(9) Safety Plan for the Works

A Safety Plan for the whole of the Works with separate parts provided for each part of the Works, including descriptions of the likely risks and measures for preventing accidents on the Site.

(10) Dive Safety Plan

(Where Diving Works are included in the scope)

Refer to JSSS ~~Chapter~~ 10 [*Diving Works*]

A Dive Safety Plan in accordance with the requirements of JSSS ~~Chapter~~ 10, including a description of the arrangements at the Site of the Diving Works for emergency recompression/decompression.

(11) Safety Plan for Dangerous Work.

Refer to JSSS 1.22 [*Dangerous Work*]

A listing of any Dangerous Work which will be encountered on the Site and general details of the Safety Plan for such Dangerous Work by reference to JSSS Annex 1.1 [*Definitions and Abbreviations*] and GC 4.1 [*Contractor's General Obligations*].

(12) Permit to Work System

Refer to JSSS 1.23 [*Permit to Work System*]

A listing of all high-risk areas of the Works that shall be subject to the Permit to Work System together with a description of proposed procedure.

(13) Safety Measures for Contractor's Equipment

Refer to JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*]

A description of the procedures for inspecting and maintaining the Contractor's Equipment together with all spare parts, including inspections prior to shipment, after arrival at the Site and during use to ensure that all Contractor's Equipment at the Site is maintained in a safe, efficient, non-polluting and acceptable condition. It shall include a general description of all regular maintenance and repair activities.

(14) Proposed Health and Safety Incentive Scheme

Refer to JSSS 1.34 [*Health and Safety Incentive Schemes*]

A description of the Proposed Health and Safety Incentive Scheme, designed to encourage conscious consideration of health and safety by Contractor's Personnel and to reward improvement.

(15) Safety Information Sharing and Communications Policy

A description of the information sharing and communication systems for health and safety within the organisation of the Contractor and between the Contractor and Employer, Engineer and relevant government agencies, etc. Reference shall be made to the various health and safety meetings described in JSSS.

A description of safety management activities for Contractor's Personnel shall be included together with the method for giving and receiving feedback and opinions regarding health and safety.

(16) Health and Safety Equipment, Facilities and Personal Protective Equipment (PPE)

Refer to JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*]

A description of the intended policies for the deployment of safety equipment, facilities and PPE to reduce health and safety risks, detailing the items and methods for providing and replacing (when worn, lost or damaged) general PPE and the use of additional PPE for particular working locations, environments and conditions.

(17) Site Inspection Plan

A description of the methods for Site inspections by the HSO, types of inspection and frequency.

The description shall also include the methods for reporting, recording and utilising results and also for posting warnings, no entry notices, giving instructions and stopping work.

(18) Site Security

A description of the proposed Site security methods explaining how access to the Site by third parties, neighbours, nearby residents and any trespassers upon the Site will be prevented or (if and when applicable) permitted.

The description shall include the provision and control of entry and exit gates, barriers etc., security posts, security patrols and any other measures to reasonably ensure the security of the Site.

(19) Policy for Preventing Traffic Accidents

A description of the measures to be implemented for the prevention of traffic accidents on the public roads outside the Site and on roads and all other trafficked areas within the Site.

A description of the measures to be implemented to prevent workers riding in the back of pick-ups or trucks, or boarding or alighting from them near the Site, compulsory wearing of seat belts, ~~systems of warning, punishment and dismissal for non-compliance should also be included~~.

(20) Reporting Procedure for Unsafe Conditions and Behaviour

A procedure for the reporting of unsafe conditions and unsafe behaviour on the Site (including near-misses) together with improvement actions including instructions, implementation and the recording of improvement measures.

(21) Accident Response Plan

Refer to JSSS 1.24 [*Accident Response Plan*]

The Plan shall describe the facilities to be provided and also cover the preparation and submission of the accident report, describing when an accident report will be prepared and submitted, the method of investigation of causes, planning and implementation of preventive measures against recurrence.

(22) Health Care Plan

Refer to JSSS 1.36 [*Health Matters*]

A description of the proposed facilities, furniture and equipment for rest stations, restroom, dining facilities, canteens, sanitary facilities, sports and leisure facilities, shower facilities, changing room etc..

A health care plan with services and facilities for maintaining the health and occupational health of all Contractor's Personnel.

(23) Environmental, Temporary Works and Structural Monitoring Plans

Refer to JSSS 2.1.7 [*Monitoring and Records*]

A description of the proposed monitoring equipment, instruments, Contractor's Personnel and methods for monitoring and control of the working environment, the performance of the ~~Temporary~~ Works and the avoidance of damage to Other Properties.

(24) Fire Response Plan

Refer to JSSS 2.8 [*Fire Prevention*]

Details of the fire prevention services to be provided at the Site.

~~The Fire Response Plan required by JSSS 2.8 [*Fire Prevention*].~~

(25) Emergency Response Plan

Refer to JSSS 1.26 [*Emergency Response Plan*]

Details of the Emergency Response Plan.

(26) Monitoring and Review of Health and Safety Management Activities

The procedures for monitoring and reviewing the purpose, method, timing, utilisation of results, development, etc. of health and safety management activities such as safety inspections, TBM ~~morning toolbox meetings~~, 5S activities (refer to JSSS 1.15 [*Contractor's Safety Management Activities*]).

(27) Safety Induction Training

Refer to JSSS 1.20 [*Safety Induction Training*]

An outline description of the required safety induction training for all proposed health and safety training plans, describing methods, facilities, time, teaching materials, policies for selecting trainers, etc. and covering safety induction.

Details of special training required for Dangerous Work~~s~~ shall also be included.

(28) Skill Training

Refer to JSSS 1.21 [*Skill Training*]

An outline description of the proposed Skill Training plans for local counterpart Operation Leaders, describing OJT and classroom components, facilities, participants, time, teaching materials, policies for selecting trainers and the counterparts.

(29) Legal Requirements

A description in brief with references to the legal requirements and remedies in the Country for injuries and death at work and for persons affected by illness, together with a summary of any workmen's accident compensation insurance or stating that there are no such legal requirements if that is the case, and any other legal obligations and remedies. (JC103)

JC103: deleted and modified.

Annex 1.3: Additional Contractor Forms

Attached Forms:

Form JSSS/BSD – Bidder's Safety Declaration

Form JSSS/SAR – Sample Accident Report

Form JSSS/BSD – Bidder's Safety Declaration

[This form is to be inserted in the Bidding Documents after the existing Form-ACK, with new page number, renumbering existing pages appropriately and inserting suitable reference in the Table of Forms]

I, *[insert name and position of authorised signatory]*, being duly authorised by *[insert name of Bidder/members of joint venture ("JV")]* (hereinafter referred to as the "Bidder") to execute this Form JSSS/BSD, hereby declare our commitment to comply with the health and safety requirements of the Contract.

The Bidder declares, that if selected to undertake the Works, he will ensure that the Site is established and maintained as a healthy and safe workplace for the Contractor's Personnel, the Employer's Personnel and all other persons entitled to be thereon or that may be affected by operations thereby.

The Bidder hereby declares that after ~~full~~ investigation and research of resources within the Country, he has given full and careful consideration and fully accepts the need and has made full allowance for the importation, the use upon the Works and subsequent re-export in accordance with the Contract of all required Contractor's Equipment, Temporary Works, PPE and all other safety resources necessary to maintain the ~~highest achievable~~ international level of health and safety upon the Works.

The Bidder declares that he will mobilise for use upon the Works:

1. New and up to date PPE and other safety equipment ~~and Temporary Works~~ of an international standard, suitable and fit for the purpose for which it is intended, in full working order, complete with all necessary spare parts and consumables, suitable and safe for use on the Works, all to meet with the consent of the Engineer and in sufficient quantities to allow for replacement in the case of being worn-out, lost or damaged, and
2. New or ~~up to date~~ recent Contractor's Equipment and Temporary Works, all suitable and fit for the purpose for which it is intended, in full working order, clean, non-polluting, complete with all necessary spare parts and consumables, suitable and safe for use on the Works~~;~~ .

~~and that all of the above will be used correctly and for the purpose intended.~~

The Bidder further declares that he shall:

1. Carry out regular and thorough safety inspections, find and correct any health and safety problems on the Works, primarily by trying to eliminate or reduce hazards through making feasible changes in working conditions rather than relying on PPE to ~~eliminate or~~ reduce risks.
2. Employ workers with appropriate skill, educational or vocational qualification, experience and capability.
3. Fully inform workers about hazards.
4. Provide health and safety training to all Contractor's Personnel, any ~~s~~Subcontractors, suppliers and others for whom the Contractor is responsible, the Employer's Personnel and all other persons who are entitled to be on the Site, in a language and vocabulary they can understand.
5. Keep accurate records of work-related injuries and illnesses.
6. Perform tests in the workplace, such as air sampling as required by the Safety Specification.
7. Provide required new PPE at no cost to workers and ensure that this is used properly, kept in good condition and replaced in the case of being worn-out, lost or damaged.
8. Assign only workers who, in consideration of health, physical condition and age are suited to the operations to which they are assigned.

9. Provide eyesight, hearing and mobility examinations and other medical tests required by the Contract.

10. Post injury and illness information and data where workers can see them.

~~11. Inform the Engineer and submit details of any accident as soon as practicable and in any event no later than twenty-four (24) hours after the occurrence and, in the case of a fatal accident shall inform the Engineer immediately.~~ At occurrence of any accident, promptly inform the Engineer and thereafter submit details of the accident within twenty four (24) hours after its occurrence.

12. Not retaliate against workers for using their rights under the Laws of the Country.

The requirements of this declaration shall apply fully to all of the Bidder's proposed Subcontractors, suppliers and specialists engaged by the Bidder on the Works, for whom the Bidder shall remain fully responsible.

The Bidder also affirms that if the Bid is successful, the Health and Safety Officer ~~at Site~~, named below and also included in Bidding Form, Form PER -1: Proposed Personnel, unless otherwise required by the Bidding Documents, shall be assigned from the Commencement Date, full-time upon the Site ~~of the Works~~ and shall not be replaced or substituted at any time except with the consent of the Engineer.

If the Bid is accepted the Bidder agrees that this Declaration ~~together with all other documents comprised in the Bid Stage Safety Plan~~ shall form a part of the Contract, at and from which time all references to "Bidder" shall be construed as references to "Contractor".

Signed:	Signed:
_____	(Bidder's Proposed Health and Safety Officer ~~at Site~~*)
(Bidder's Official Representative)	Or
	Bidder's Head Office Health and Safety Manager*)
Name:	Name:
_____	_____
Date: _____	Date: _____(JC104)

JC104: deleted and modified.

*(*Delete as applicable)*

Form JSSS/SAR – Sample Accident Report

[The form is to be completed by the Contractor, submitted to the Engineer when applicable and in accordance with JSSS 1.25 [Measures at the Time Accidents Occur]

CONTRACT INFORMATION:	
1) Name of Project:	
2) Project Reference Number： （e.g. L/A No.~~, G/A No.~~）	
3) Contract Number:	
4) Package Description:	
5) Employer: (name and nationality)	
(1) Contractor: （name and nationality） (If casualty(ies) is(are) belonging to ~~s~~Subcontractor,) Subcontractor: (name and nationality)	
7) Engineer: (name and nationality)	
8) Press Report about the Accident (Name of Media, Date, and Copy of Report to be attached)	

(above to be inserted before all reports) (JC105)

JC105: deleted and modified.

FIRST REPORT INFORMATION:	
1) Date and time of accident occurrence (local time):	
2) Date and time of first verbal report to Engineer:	
3) Exact location of accident occurrence:	
4) Brief background and apparent cause:	
5) (i) Number of casualty(ies)/ (ii) Information of casualty(ies) (Nationality, Age, Sex, Position, Experience Year)/ (iii) Description of injuries incurred	
6) Physical damages to the Works, Site and any properties of the third parties	
7) Present medical status of casualty(ies):	
8) Present work status:	
9) List attached information (e.g. Layout and sketch drawings, photographs, notes and report):	
10) Accident Report Submission Date	

SUBSEQUENT REPORT INFORMATION (POST-INVESTIGATION):	
1) Cause(s) of the accident:	
2) Counter-measures proposed by the Contractor to avoid recurrence of similar accidents and risks:	
3) Number of reported accident(s) occurred in the past one (1) year in the same Contract Package as the accident occurred:	
4) Number of reported near misses occurred in the past one (1) year in the same Contract Package as the accident occurred:	
5) Other Information:	

Report Prepared by: (name): _____ (sign) : _____ Report Submission Date(s) _____ Time: _____	Contractor's Health and Safety Officer (HSO)
Receipt acknowledged by: (name): _____ (sign): _____ Report Receipt Date(s) _____ Time: _____	Engineer

(above to be inserted with detail and signatures at end of each report)

CHAPTER 2: GENERAL SAFETY MEASURES

2.1 WORK ENVIRONMENT

Contractor's Personnel shall be provided with a safe and healthy occupational environment. The Contractor shall implement all necessary measures to ~~ensure this, taking particular care to~~ (JC106) avoid the creation of and/or any contact with Hazardous Substances, intense noise, heat, cold or similar and potentially harmful conditions or to provide protection against such conditions.

JC106: deleted.

2.1.1 Hazardous Substances

(1) Definitions

Refer to the definition of Hazardous Substances in JSSS Annex 1.1 [*Definitions and Abbreviations*]. ~~For the purposes of this definition, note that Hazardous Substances shall include dust of any kind when present at a concentration in air equal to or greater than:~~

~~(a) 10 mg/m3 (8-hour TWA) of inhalable dust; or~~

~~(b) 4 mg/m3 (8-hour TWA) of respirable dust.~~ (JC107)

JC107: Moved to 2.1.2.

(2) Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any Hazardous Substances either existing on the Site, used in or encountered on the Works, the Contractor shall take necessary measures for work environment complying with ~~the technical requirements specified in~~ EH40/2005 Workplace Exposure Limits, (third edition published 2018), issued by HSE, including monitoring such substances to ensure that the Short Term and Long-Term exposure limits in HSE Table 1 are not exceeded. (JC108)

JC108: Moved from 2.1.2.

MD: Changed for consistency with the changes made to OSHA references

NK2: no comment.

2.1.2 ~~Compliance Standards~~ Dust (JC109)

~~(1) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for work environment complying with the technical requirements specified in EH40/2005 Workplace Exposure Limits, (third edition published 2018), issued by HSE.~~ (JC109)

(3) Dust

Dust of any kind when present at a concentration in air shall not be equal to or greater than:

(a) 10 mg/m3 (8-hour Time Weighted Average: TWA) of inhalable dust; or

(b) 4 mg/m3 (8-hour TWA) of respirable dust. (JC109)

JC108:modified.

(4) Prevention

(a) The Contractor shall prevent dust emission, by keeping the source moist and covering dust creating areas and materials with suitable dust-proof sheeting; and

(b) The Contractor shall provide all necessary Contractor's Equipment and Temporary

Works to achieve this including water-bowsers, spraying equipment, extract ventilation and filtration equipment.

(5) PPE

(a) If, in the opinion of the HSO, it is not reasonably practicable to reduce dust to acceptable levels, PPE (Breathing Apparatus) shall be provided for all relevant Contractor's Personnel; and

(b) For details of PPE refer to JSSS 2.9.1 [*PPE*].

~~(2) The Contractor shall monitor all substances and ensure that the Short Term and Long Term exposure limits in HSE Table 1 are not exceeded.~~

(6) Asbestos

(a) The Contractor shall be aware that asbestos causes occupational fatalities. It is commonly found in older buildings frequently in ceiling and floor cavities, insulation, sprayed coatings, floor tiles and composites, asbestos-cement sheets and roofing felt;

(b) If the scope of the Works requires removal of any of the above materials then the Contractor shall check for asbestos content, then remove and dispose of such materials in compliance with L143 Approved Code of Practice and guidance, for Managing and Working with Asbestos (second edition published 2013), issued by HSE; and

(c) If the Particular Safety Specification specifies that asbestos may exist at the Site and that the Contractor is responsible for the removal and disposal or if it is discovered during the execution of the Work and the Contractor is instructed by the Engineer to remove it, then the Contractor shall take measures in accordance with the requirements of JSSS 1.22 [*Dangerous Work*]; and comply with L143 Approved Code of Practice and guidance, for Managing and Working with Asbestos (second edition published 2013), issued by HSE; for the controlled safe removal and disposal of asbestos.

~~(3) Other Hazardous Substances~~

~~The Contractor shall comply with relevant HSE regulations with regard to health and environmental management and control of any other Hazardous Substances either existing on the Site, used in or encountered on the Works.~~

~~(4) Prevention~~

~~(c) The Contractor shall prevent dust emission, by keeping the source moist and covering dust creating areas and materials with suitable dust proof sheeting; and~~

~~(d) The Contractor shall provide all necessary Contractor's Equipment and Temporary Works to achieve this including water-bowsers, spraying equipment, extract ventilation and filtration equipment.~~

~~(5) PPE~~

~~(c) If, in the opinion of the HSO, it is not reasonably practicable to reduce dust to acceptable levels, PPE shall be provided for all Contractor's Personnel; and~~

~~(d) For details of PPE refer to JSSS 2.9.1 [*PPE*].~~ (JC110)

JC110: modified and added.

2.1.3 Poor Ventilation

(1) The Contractor shall inspect and carry out ~~tests~~ monitoring (JC111) to ensure that all working areas have adequate and healthy natural ventilation.

JC111: revised.

(2) If any areas do not have adequate and healthy natural ventilation, the Contractor shall provide suitable and efficient mechanical ventilation systems with fans, ducting and all associated devices and services to improve the working environment to acceptable safe levels.

(3) If this is not completely possible then PPE (breathing apparatus) shall be used in accordance with the requirements of JSSS 2.9.1 (8) [*Respiratory Protection Equipment (RPE)*].

(4) The Contractor shall generally prohibit the use of internal combustion engines in internal areas. When the use of such engines is unavoidable, the Contractor shall provide exhaust systems which safely and efficiently collect, contain and expel exhaust gases to external areas and provide additional adequate ventilation.

2.1.4 Noise

(1) Compliance Standards

(a) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for noise exposure and control complying with ~~the technical requirements specified in~~ and 1926.52 [Occupational noise exposure]; and

MD: following JICA comment on later JSSS 2.5.1 it is apparent that there are inconsistencies in the numerous references to OSHA.

As coordinated with NK, we have now simplified all reference to OSHA and made them consistent following the following convention:

- OSHA 1926 Subpart F [Xxx]
- OSHA 1926.152 [Xxx]
- OSHA 1910 Subpart T [Commercial Diving ..]
- OSHA 1910.423I [Recompression facility]

Refer also to change in the definition in Annex 1.1 & 2.5.1 also.

There is also no need to refer to “technical requirements” as these are referred to in JSSS 1.4.5 (4).

We have edited this throughout JSSS.

NK2: no comment.

(b) The Contractor shall provide equipment such as, sound level meters, noise dosimeters, or octave band analysers to determine what sound levels exist and whether they are within the levels in Table D-2 or not.

(2) Preventive Measures

To prevent noise damage to Contractor’s Personnel, which may occur when noise levels exceed 90 dBA (referred to as “intense noise” in JSSS), or if for any reason sound levels cannot be determined as above the Contractor shall:

(a) Reduce sound levels through feasible administrative or engineering controls to within the levels of Table 2.1.1: OSHA Table D-2: Permissible Noise Exposures of the OSHA Standard referred to above, if at all possible:

Table 2.1.1: OSHA Table D-2: Permissible Noise Exposures

Duration per day, hours	Sound level dBA slow response	Duration per day, hours	Sound level dBA slow response

8	90	1½	102
6	92	1	105
4	95	½	110
3	97	¼ or less	115
2	100		

(b) If such controls are not possible or if they fail to reduce sound levels within the levels of OSHA Table D-2, provide PPE (Ear Protection) for ~~all~~ relevant Contractor's Personnel as specified in JSSS 2.9.1 (7) [*Ear Protection*] in consideration of the noise level and length of noise exposure at the working area in accordance with the provisions of the OSHA Standard;

(c) Post warning signs at the working area to make all Contractor's Personnel aware that ear protection must be worn; and

(d) In all cases where the sound levels exceed the values shown OSHA Table D-2, a Continuing Effective Hearing Conservation Program specified in (3) below shall be implemented.

(3) Hearing Conservation Program

(a) The Contractor shall implement a hearing protection and conservation program whereby noise exposure levels are monitored in order to accurately identify any Contractor's Personnel that are exposed to noise at or above 90 dBA averaged over 8 working hours, or an 8-hour time TWA;

(b) Further to JSSS 2.1.4 the Contractor shall comply with OSHA 1910.95 [Occupational noise exposure], in respect of exposure to impulsive or impact noise.

MD3: After coordination, suggest the above reference is necessary for impulsive or impact noise

(c) Exposure to impulsive or impact noise shall not exceed 140 dB peak sound pressure level; and

MD2:Above is added by reference to the changes for Blasting sound in JSSS 7.6.3
NK3: confirmed.

MD3:Above 140 dB is correct by reference to OSHA 1910.95.

(d) The Contractor shall monitor all workers whose noise exposure is equivalent to or greater than a noise exposure received in eight (8) hours where the noise level is constantly ~~90~~ 85 dB~~A~~. The exposure measurement must include all continuous, intermittent, and impulsive noise within an 80 dB~~A~~ to 130 dB~~A~~ range and must be taken during a typical work situation. The Contractor shall choose the monitoring method that best suits each individual situation. (JC112)

JC112: deleted, added and modified.

MD3 The addition of "A" above, is not necessary according OSHA 1910.95

We will modify as above, if necessary please confirm that the references and values are correct for JSSS purposes.

2.1.5 Further Requirements for Dangerous Work

Further to the requirements of JSSS 1.22 [*Dangerous Work*] and in relation to work in Confined Spaces, Hazardous Areas, or Operational Areas or in the presence of or requiring the use of Hazardous Substances or Dangerous Goods or other work which is especially and potentially dangerous, requiring the application of special skills, safety equipment, safety measures and

PPE, the Contractor shall establish systems and procedures to ensure the safety of all Contractor's Personnel engaged upon or supervising or managing such Dangerous Work, and for this purpose the Contractor shall:

(1) Measure the concentration of oxygen, hydrogen sulphide, carbon dioxide, carbon monoxide, chlorine, chlorine dioxide, Trade Effluent and any other potentially harmful materials, gases and chemicals, or other work environment items before starting any work.

(2) Safely isolate the supply and flow of any Trade Effluent, ~~chemical~~ or other potentially harmful ~~and~~ materials, gases and chemicals during the period of any work and safely reconnect or continue same after the work is finished.

NK2: duplicated "chemicals" and unnecessary "and" ? (8/11)

MD2: Agreed

(3) Improve and maintain the work environment for example by mechanical ventilation and filtration if the result of the work environment measurement in (1) above violates the limits ~~imposed by~~ specified in this JSSS ~~Chapter~~ 2. [*General Safety Measures*].

(4) For further information on the removal and disposal of Hazardous Substances refer to JSSS 1.22 [*Dangerous Work*].

(5) For further information on prohibition of entry to areas where Dangerous Work is being performed refer to JSSS 2.3 [*Prohibition of Entry ~~– Dangerous Work~~*]. (JC113)

JC113: modified.

2.1.6 High and Low Temperatures and Humidity

(1) To avoid health hazards due to excessively hot, cold or humid working environments, the Contractor shall improve the ~~environmental working conditions~~ work environment for all Contractor's Personnel by:

(a) Providing temporary covers and shade to protect workers from rain, hail, snow, sunlight and reflection from the surrounding wall and ground;

(b) Providing protection from any heat or cold source and provide adequate ventilation, heating or air conditioning for indoor working;

(c) Where permitted by the Engineer in hot climates, carrying out work during the night when temperatures and humidity are lower;

(d) Providing drinking water and supplement that allow salt replenishment at the work place;

(e) Providing a rest station with heating, air conditioning or shade near the work place, or providing other facilities equipped with accommodation that allow personnel who fall ill to lie down and recover;

(f) Allowing work breaks and reducing excessive and continuous working times; and

(g) Allowing an initial acclimatisation period for Contractor's Personnel to become used to the heat or cold.

(2) The Contractor shall ensure that workers wear moisture-permeable and loose-fitting clothing in hot climates and suitably warm, insulated and waterproof clothes in cool or cold climates.

(3) If any undesirable conditions are detected, the Contractor shall take appropriate measures to correct the situation, allowing Contractor's Personnel to rest or temporarily stop the work until the conditions improve.

(6) ~~The Contractor shall ensure that all Contractor's Personnel are properly dressed in~~

~~suitable insulated cold weather clothing to work safely in low temperatures.~~ (JC114)

JC114: deleted and modified.

(4) The Contractor shall monitor the health of Contractor's Personnel before and during the work and allowing Contractor's Personnel to take a rest and/or rehydrate and shall act if any abnormalities are observed.

NK2 : it seems the sentence does not continue. Can you check this. (8/12)

2.1.7 Monitoring and Records

(1) The Contractor shall monitor the working environment and prepare regular daily, weekly and monthly records of dust, noise, air and water quality, inadequate natural ventilation, rainfall, snowfall, temperatures, humidity, wind speed and direction regularly ~~throughout the Time for Completion of the Works.~~ until the Taking-Over Certificate is issued for the entire Works. (JC114A)

JC114A: revised. (Note 114a is added on 20200811.)

MD: This change is not correct; the original wording is correct. The Contractor has no such obligation (or right or need) to access any Sections of the Works which have been completed and taken over by the Employer. Similarly, there is no such right to access any part of the Permanent Works that have been taken over, occupied or used by the Employer.

NK2: agreed and explain JICA to leave this as original.

(2) The procedure for preparation and submission of such records shall be as stated in JSSS 1.32 [*Health and Safety Records*].

(3) The Contractor's monitoring and recording shall also cover:

(a) The pre-existent conditions for all periods of Dangerous Work;

(b) Dust at work places where excessive dust and waste material such as dirt, rocks, minerals, metals, carbon, cement, etc. is generated;

(c) Noise levels at work places that generate intense noise;

(d) Ventilation volume, temperature and concentration of carbon dioxide, carbon monoxide, oxygen, hydrogen sulphide, other toxic or dangerous gases at work places including tunnels and deep pits and Confined Spaces; and

(e) Illuminance at work place and walkways.

(4) The above monitoring shall be conducted separately from the environmental monitoring that may be required by the Laws of the Country and any environmental monitoring that may be separately specified in the Contract.

(5) For the following measurement items, if the following limits are violated, the Contractor shall take the measures prescribed in JSSS 1.22 [*Dangerous Work*], JSSS 2.1.5 [*Further Requirements for Dangerous Work*] and JSSS 2.3 *[Prohibition of Entry ~~– Dangerous Work~~]*.

(a) Values of limits of measurement items:

(7) Oxygen concentration less than 19.0% and more than 23.5%;

(ii) Hydrogen sulphide concentration more than 10 ppm (short-term exposure limit) or 5 ppm (long term exposure limit);

(iii) Carbon dioxide concentration more than 15,000 ppm (short-term exposure limit) or 5,000 ppm (long term exposure limit); and

(iv) Other Hazardous Substances either existing on the Site, used in or encountered on the Works:~~V~~ values of limits for other substances given in

EH40/2005 Workplace Exposure Limits (third edition published 2018), issued by HSE, Table 1.

(b) Combustible gas and vapor concentration: in excess of 10% of the lower limit of flammability.

(6) The Contractor shall also monitor any vibration, settlement and other adverse effects arising out of the execution of the Works to ascertain if these are causing any adverse effect to the Works or to Other Properties whilst ensuring that no damage or weakening is caused.

(7) Monitoring shall be accomplished by the Contractor through regular inspection, measurement, survey, instrument monitoring and recording as determined by the nature and scope of the Works taking account of any additional requirements which may be specified in the Particular Safety Specification.

(8) Works that require monitoring shall include the following where any risk of damage is perceived by the HSO or Engineer:

(e) Excavation Works;

(f) Foundation Piling Works;

(g) Ground improvement;

(h) Temporary ground dewatering;

(i) Temporary Works such as major items of Earthwork Support, Coffer ~~D~~dams and the like; to demonstrate that they are performing safely, to the designed limits and for the intended purpose;

(j) Other parts of the Works required to evidence the Contractor's compliance with the ~~Contract~~ Safety Plan; and

MD: Contract is better as it is more inclusive.

NK2: agreed and explain JICA to leave this as original.

(k) Other parts of the Works which may be specified in the Particular Safety Specification.

(9) The Contractor shall prepare a monitoring plan as a part of the Safety Plan or Method Statement for the above Works (JC115) which shall describe:

JC115: Is "the above Works" to be replaced with "for the works hereinabove"?

MD: I suggest not, the "above Works" is correct. As an improvement, this could be changed to the "for work of the types referred to in this Clause, which shall describe:"

NK2: agreed and explain JICA to leave this as original.

(a) The Contractor's proposed monitoring criteria for vibration, settlement and all other potential effects of the Works, which by the Contractor's own calculations will ensure that no damage or weakening is caused to Other Properties;

(b) The types, locations and numbers of monitoring instruments and other equipment;

(c) The measurement frequency and recording methods; and

(d) The countermeasures to be applied when the actual measured values are close to or exceed the various minimum, intermediate and maximum criteria.

(10) The Contractor shall:

(a) Provide and maintain all survey equipment, monitoring and recording equipment to provide comprehensive, accurate and contemporary or live data with records, showing the performance characteristics of the Works;

(b) Provide qualified staff to perform the monitoring;

(c) Maintain and calibrate the monitoring instruments and equipment as necessary throughout the execution of the Works;

(d) Perform survey and monitoring on a regular basis throughout the execution of the Works;

(e) Confirm the occurrence and extent of any adverse effect of the Works execution (JC116) by means of regular inspections of all Other Properties;

JC116: JC wonder whichever is appropriate "to execution of the Works" or "caused by execution of the Works"?

MD: Fair comment, I suggest that "arising out of the execution of the Works" is better, as follows:

(f) Confirm the occurrence and extent of any adverse effect arising out of the execution of the Works by means of regular inspections of all Other Properties;

NK2: agreed.

(g) Take the measures prescribed when necessary to comply with the Contractor's obligations, propose remedial measures and implement such measures after receiving the consent of the Engineer;

(h) Evaluate the measurement results and modify the monitoring criteria as necessary; and

(i) Submit an evaluation report if necessary with any changes to the Safety Plan for Works to the Engineer before proceeding with the Works.

(11) Requirements for instrumentation systems shall be as follows:

(a) The Contractor shall select instruments and measurement methods that meet the purpose of the ~~measurement~~ monitoring;

(b) The Contractor shall determine locations and numbers of measurement points which meet the purpose of ~~measurement~~ monitoring and need for safety management. The locations of measurement shall be where measurement can be continuously made throughout the period of working ~~are provided~~;

(c) The instrumentation shall be regularly calibrated and protected against damage by the Contractor;

(d) The HSO and other relevant Contractor's Personnel shall ~~monitor~~ analyse the data and take all necessary corrective action consequent to such monitoring to ensure the continued compliant and safe performance of the Works; and

(e) The Engineer shall be invited to attend the inspections and data collection to ensure the Contractor's compliance in accordance with JSSS 1.10 [*Engineer's Safety Representative*], JSSS 1.11 [*Safety Compliance Instructions from the Engineer*] and JSSS 1.16 [*Joint Site Safety Inspections*].

(12) Management based on Monitoring and Inspection

(a) Management by Visual Inspection:

If and when the Contractor finds any irregularity through visual inspection, the Contractor shall take necessary measures in accordance with the degree of abnormality, ~~including verification of inspection results through measurement, survey or added instrumentation and the implementation of urgent countermeasures.~~ Including detailed research, urgent countermeasures, evacuation of workers.

(b) Management by Instrument Measurement:

Unless otherwise specified in the Particular Safety Specification, the Contractor shall determine control limit values based initially upon the allowable displacement or stress in the design, then the following stepwise control values shall be established by the Contractor and necessary measurement and related actions shall be taken.

The Contractor shall provide the following three critical limits in his arrangements for the performance of the Works or in his design of the Temporary Works, and shall take appropriate action when any of these limits is reached:

(i) Primary Limit:

When measured values reach this limit, the Contractor shall increase the ~~incidence and~~ degree of care on the incident over inspections and commence preparing countermeasures which will be implemented if and when the measurement value reaches the Secondary Limit and obtain the Engineer's consent for such countermeasures.

The Contractor shall submit the measured values on a weekly basis to the Engineer unless otherwise instructed by the Engineer.

(ii) Secondary Limit:

When measured values reach this limit, the Contractor shall stop the relevant part of the Works and implement the countermeasures.

(iii) Control Limit:

When measured values reach this limit, the Contractor shall immediately stop the relevant part of the Works, advise all affected persons, prohibit entry of any unauthorised persons to the affected area(s), take ~~radical~~ counter measures to prevent failure, review and revise the Method Statement and Safety Plan, and comply with the Engineer's Instructions before proceeding.

~~(13) Contract Compliance~~ Contractor's Responsibility against damage to Property (JC117)

Notwithstanding the requirements of this Clause (JC118) of JSSS, the Contractor is reminded of his overall responsibility under the Contract in respect of damage to property.

The Contractor shall satisfy himself that the monitoring criteria and requirements specified above, or in other respective Chapters of JSSS and/or in the Particular Safety Specification, are sufficient to comply with his obligations under the Contract and he shall take any additional measures necessary to avoid damage to property.

JC117: deleted, modified and added.
JC118: Is this Clause or other?

1.	Chapter
1.1	Section
1.1.1	Clause
1.1.1(1)	Sub-Clause
1.1.1 (1) (a)	paragraph

MD: It is **Clause** 2.1.7, corrected already.

NK2: no comment.

2.2 RISK CONTROL AROUND THE SITE

2.2.1 General

(1) The Contractor is reminded of his obligations under GC 4.8 [*Safety Procedures*] and GC 4.22 [*Security of the Site*] to keep any unauthorised persons off the Site, and without prejudice to such obligations the Contractor shall take all necessary further measures under this Section to prevent any such unauthorised persons (including third parties, neighbours and particularly children) who may for example be living or working around the boundary of the Site or adjacent thereto, from entering the Site.

(2) ~~The Contractor shall inform the Engineer and request that the Employer takes necessary action including removal of any third parties and/or neighbours who may establish themselves outside the Site along and for example against the Site boundary during the Time for Completion of the Works for the potential purpose of accessing the Site.~~ In addition, the Contractor shall help to maintain communications with the local community near the Site in accordance with JSSS 2.2.6 [Community Relations]. (JC119)

JC119: modified.

(これは Site に対する第三者の立ち入り禁止を論じている部分であり、Site 自体の possession や Access を論じているわけではないので、不法・合法いずれにせよ住民を立ち退かせるところまで発注者に要求することはできないのではないか？するとできることは周辺住民との良好な関係を維持することにつきる。)

MD: Why deleted? This can be a problem which is difficult for the Contractor to resolve.

NK2: JICA explanation in Japanese was long, so I did not translated. The flowing is the reason JICA deleted.

This Clause stipulates regarding prohibition of entry of third parties and does not specify about possession and access of the Site. It is difficult for the Contractor to request the Employer to remove legal or illegal residents, isn't it? What the Contractor can do is he makes and keeps good relation with resident around the Site.

NK2: JICA does not want to review more JSSS as mentioned in his general comment, so NK want to adopt his revision other than incorrect requirement/expression. JC119 will be left as revised by JICA.

(3) In addition to taking necessary action to keep any unauthorised persons off the Site the Contractor shall fully inform the relevant local ~~police force~~ authorities (e.g. police force) and if necessary request their ~~assistance~~ investigation to remove any trespassers from the Site. When requested by the Contractor, the Employer shall provide reasonable assistance to coordinate with such local authorities. (JC120)

MD: The police force is not a "relevant authority" within the context of the definition in Clause 1.2.2 (7).

"Assistance" is correct and has more meaning than "investigation" as this is what the Contractor will require.

NK2:agreed and explain to use police and assistance to JICA.

NK3: I reconsider that the police force is direct expression, so I propose as follows:
"inform the relevant local organizations (e.g. police force)"

(4) Such measures shall include (but are not restricted to) the following requirements of this Section.

(5) The Contractor shall also prevent access to the Site by any persons, including Contractor's and Employer's Personnel and any others who are under the influence of drink or drugs and also to prevent alcohol and drugs from being brought onto the Site. (JC120)

JC120: modified and added.

MD: The addition of "from" is not grammatically correct.

NK2: agreed.

2.2.2 Working Area Perimeter

(1) Unless otherwise specified in the Particular Safety Specification, the Contractor shall:

(a) Enclose the perimeter of all working areas with secure fencing to prevent access to the Site by unauthorised persons;

(b) Maintain all such fencing in good condition, until such fencing is no longer needed and reinstate all affected areas;

(c) Provide secure entry points with lockable gates or barrier; and

(d) Provide and maintain signs clearly advising/warning against entry.

(e) Provide watchmen and lighting where, when and to the extent necessary to apprehend and evict any unauthorised persons (particularly children) from the working area, where such persons have breached the Site Perimeter and working area perimeter fencing.

(2) Unless otherwise specified in the Particular Safety Specification, working area perimeter fencing shall be temporary, constructed of new and durable materials and fit for the purpose intended.

(3) Full details of working area perimeter fencing including scope, dimensions and specifications shall be given in the Method Statement.

(4) The Contractor shall provide fall prevention measures such as temporary covers or barriers, with lighting and warning signs for any excavations outside the working area perimeter.

2.2.3 Measures for Road Occupation

(1) When the Contractor carries out work on, in or under a public road, or uses it for access to the Site, ~~prior to commencement of any such work and~~ (JC121) based on the prior coordination with the relevant authorities by the Employer, in order to ensure safe and smooth traffic flow on the road, the Contractor shall:

MD: OK but therefore suggest that “When” is changed to “Before”

NK2:no comment.

(a) Prepare a road usage plan and submit it to the relevant authorities, and obtain necessary permits, prior to road use;

(b) Obtain the approval and necessary permits of the relevant authorities before any road closure, diversion or other traffic restrictions are applied;

(c) Take necessary measures to ensure safe and smooth traffic flow on the road during the entire road usage period; and

(d) Take safety measures specified in JSSS 2.2.2 [*Secure Working Area Perimeter*].

(2) ~~Unless otherwise instructed by the Engineer, t~~The (JC121) Contractor shall provide a Spotter (refer to JSSS 2.4 [*Spotters, Flagmen and the like*] full time upon the Works (including all non-working periods) so that the Contractor’s Personnel and the general public including road users, pedestrians and all others are effectively informed, controlled and protected against accident.

JC121: deleted.

MD: Other traffic signalling may be required?

NK2:I think not required.

2.2.4 Temporary Road Signs

(1) For disseminating necessary information on roads adjacent to the Site, the Contractor shall:

(a) Provide standard road signs in the same colours and format as those used by the relevant authorities in the Country such as construction signs, direction, speed restriction, detour and roadwork signs;

(b) Signs shall be set in suitable places so as to give due warning, information and guidance to road-users and pedestrians alike (JC122); and

JC122: Is it "and the like?

MD: Suggest no, the original text is sufficient.

NK2: agreed.

(c) Signs shall be fit for purpose, fixed firmly so as not to break, fall or otherwise be damaged due to vibration, wind or other natural causes.

(2) Maintain the various signs regularly, including repairing, painting and cleaning. Ensure that all are clearly visible, well-lit or made of reflective materials so that they can be seen clearly from a distance at night.

2.2.5 Traffic Accident Prevention at Site Entrance

(1) In order to prevent traffic accidents occurring at or near the Site entrance, the Contractor shall:

(a) Provide warning signs adjacent to the Site entrance to inform drivers on the public road that the Site entrance exists and to inform of the possible emergence of construction traffic/equipment;

(b) Provide temporary traffic signals or Spotters for safe control of traffic (including construction traffic) and Contractor's Equipment, Contractor's Personnel and the general public including road users, pedestrians and all others to protect against accident;

(c) Provide designated areas for anyone entering the Site to board or be discharged from public and private transport;

(d) Provide pedestrian crossings, ~~manned or with~~ and passages with Spotters or traffic signals; and

(e) ~~Prevent vehicles entering or exiting the Site carrying persons in the back of trucks, pick-ups or the like~~. (JC123);

JC123: deleted and modified.

(2) Priority shall be given to pedestrians and passing vehicles at the entrance.

2.2.6 Community Relations

(1) In order to maintain communications and improve safety for the local community near ~~to~~ (JC124) the Site, the Contractor shall:

(a) Cooperate with the Employer and assist in dissemination of comprehensive information about the Project to the nearby community; and

(b) If so required by the Particular Safety Specification, Conduct traffic safety and awareness activities for the local community.

(2) The Contractor shall ensure that all Contractor's Personnel are informed of the safety rules and any precautions regarding the safe passage of construction vehicles/equipment especially when children are arriving at or leaving from school.

(3) The Contractor shall report immediately to the Engineer if the local community raises any complaints or issues any requests to the Contractor.

JC124: deleted.

2.3 PROHIBITION OF ENTRY ~~– DANGEROUS WORK~~ (JC125)

2.3.1 General

(1) The Contractor shall prohibit unauthorised personnel from entering areas where Dangerous Work is being undertaken

(2) For general requirements of Dangerous Work (JC125) refer to JSSS 1.22 [*Dangerous Work*].

(3) "Unauthorised personnel" in this context shall mean Contractor's Personnel, Employer's Personnel and any other persons who have not been properly trained or who are not properly equipped with PPE (including rescue equipment) and who are not carrying and displaying an official permit issued to them by the HSO, for that specific work place in accordance with JSSS 1.23 [*Permit to Work System*].

MD: This definition is not general, it is drafted for this section and has therefore not been transferred to Annex 1.1

NK2: no comment.

(4) Workers assigned to Dangerous Work shall be subject to the Permit to Work System described in JSSS 1.23 [*Permit to Work System*].

JC125: deleted and modified.

2.3.2 Demarcation and Requirements

(1) The Contractor shall clearly demarcate all areas where Dangerous Work is being carried out by the use of appropriate fencing, barriers, signage and lighting and shall control access to such areas with the full-time assignment of a Spotter.

(2) The Spotter shall be established outside the working area, and shall prevent the entry of unauthorised personnel and shall constantly communicate with and monitor the safety of assigned workers. The Spotter shall be equipped with radio or other efficient means of communication to act as a liaison with other relevant Contractor's Personnel.

(3) No-one, no matter their position of authority, should be allowed to enter, if not so authorised to do so and the Contractor shall ensure that Spotters do not face any adverse repercussions because of a refusal to allow access.

2.3.3 ~~Examples of Dangerous Work~~ (JC126)

JC126: この内容がここで出てくることに唐突感あり。JSSS1.22 に 2.3.3 全体を移動させてください。
It is felt as suddenness that this content appears here. Please move the entire 2.3.3 to JSSS 1.22.

~~For clarity "Dangerous Work" shall also include:~~

~~(1) The detection, safe removal and disposal of Unexploded Ordnance as referred to in JSSS 1.38 [*Unexploded Ordnance (UXO)*].~~

~~(2) The delivery, storage and/or use of harmful, dangerous or explosive materials, chemicals, gases or the like to be used in the Works or for use in or which are the product of the manufacturing or treatment process of the finished Works or in Operational Areas.~~

~~(3) Welding work, hot cutting work or demolition work.~~

~~(4) Work in areas where Contractor's Personnel are already performing work that may become more hazardous if anyone other than authorised personnel enter, for example Scaffolding erection, use and dismantling, and areas where Contractor's Equipment is operating and the HSO considers there to be a risk of any accident.~~

~~(5) Work in areas where very hot or cold objects are being handled and/or the working area itself is extremely hot or cold.~~

~~(6) Work in areas where there is potential exposure to harmful radiation or ultrasound.~~

~~(7) Work in areas where the concentration of gases, dust and any other dangerous or harmful materials exceed the limits specified in JSSS 2.1 [*Work Environment*].~~

~~(8) Work in areas where Permanent Works or Temporary Works have not been performed completely or properly and/or which are therefore unsound, unstable or unsafe.~~

(9) ~~Work in areas under, within or adjacent to existing buildings, roads, bridges or other structures which are unstable and/or unsafe and which pose risks to safety unless additional support and strengthening measures are implemented.~~

(10) Work ~~or work~~ in ~~areas which may have been damaged and otherwise rendered dangerous by adverse climatic, natural or seismic conditions.~~

2.4 SPOTTERS~~, FLAGMEN AND THE LIKE~~ (JC127)

2.4.1 Definitions

~~In accordance with the definition provided in~~ For the definition of "Spotter", refer to JSSS Annex1.1 [*Definitions and Abbreviations*], ~~a reference to either "Spotter" or "Flagman" in JSSS shall be deemed to include a reference to the other or both and therefore references in this Chapter are to Spotters, which shall be deemed to include both.~~ (JC127)

JC127: 文章中に Flagman という言葉が使われていません。There is no term of Flagman in the text of JSSS.
Deleted and added.

2.4.2 Duties

Duties include for example:

(1) Preventing unauthorised personnel from entering areas where Dangerous Work is being carried out.

(2) Giving appropriate guidance and signals during operation of Contractor's Equipment to prevent the equipment tipping, overturning or falling.

(3) Giving appropriate guidance and signals to prevent Contractor's Personnel from being struck or pinned by Contractor's Equipment.

(4) Assisting drivers of vehicles including trucks and operators of other Contractor's Equipment in positioning their vehicles particularly when manoeuvring.

(5) Directing operators and drivers to prevent Contractor's Personnel, Contractor's Equipment, Goods in transit, transport and the like from coming into contact with Overhead Services as defined in JSSS ~~Chapter~~ 3 [*Existing Underground, Concealed and Overhead Services*] when working within close proximity and preventing same from encroaching upon minimum allowable distance from Overhead Services.

(6) Controlling pedestrian and vehicular traffic, Contractor's Personnel and Contractor's Equipment on roads and footpaths on or adjacent to the Site, adjacent to buildings, Operational Areas, places with poor visibility, slopes and vertical drops, places where there is risk of falling or landslide and places where excavation and transporting equipment perform excavation works close to workers.

(7) Monitoring working locations and conditions and preventing any persons from entering areas where Dangerous Work is being carried out or where there is any risk of potential injury and accident.

(8) Any other similar duties and assistance.

2.4.3 Placement

(1) The Contractor shall provide Spotters as appropriate to the Site situation and the work methods employed.

(2) The Contractor shall ensure that the Spotters are informed about the Site conditions and accident prevention.

2.4.4 Safety

The Contractor shall:

(1) Ensure the safety of Spotters when directing vehicles or Contractor's Equipment.

(2) Ensure that Spotters and drivers agree on hand signals before assisting with vehicle manoeuvring.

(3) Instruct Spotters to maintain visual contact at all times with the driver during vehicle manoeuvring.

(4) Instruct drivers to stop manoeuvring immediately if they lose sight of the Spotter.

(5) Not give Spotters additional duties while they are already acting as Spotters.

(6) Instruct Spotters not to use personal mobile phones, personal headphones, or other items which could pose a distraction during spotting activities.

(7) Provide Spotters with high-visibility clothing, especially during night operations.

2.4.5 Signals

(1) To avoid the risk of injury to the Contractor's Personnel when operating Contractor's Equipment, the Contractor shall establish a standardised signal system and appoint a Spotter to give necessary signals to the Contractor's Personnel.

(2) The Contractor shall ensure that all Contractor's Personnel understand and comply with the signals relating to their assigned work task. (JC128)

JC128: added.

(3) The Contractor shall inform and remind all Contractor's Personnel including those designated as Spotters, of the established standardised signal system as follows:

(a) By training all personnel when they first start work at the Site;

(b) By re-confirming with the all personnel in the TBM before the start of work each day; and

(c) By posting signboards on Site where required showing the standardised signals and placing a smaller-sized sticker version directly on the concerned Contractor's Equipment.

2.4.6 Qualification of Personnel

The Contractor shall ensure that all Spotters possess sufficient experience and ability and are adequately trained and supervised to perform their duties.

2.4.7 Communication Tools

The Contractor shall, when necessary, provide and maintain any necessary equipment such as hand-held radios, to ensure effective and safe communications and train all Spotters in their use.

2.4.8 PPE

The Contractor shall ensure that all Spotters are provided with PPE including hats, whistles, high visibility jackets, flags, illuminated batons, etc. to safely and adequately perform their duties.

2.5 FALL PREVENTION

2.5.1 General Items

(1) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for fall prevention complying with ~~the technical requirements specified in~~ OSHA ~~Standard Part~~ 1926 Subpart E [Personal Protective and Life Saving Equipment], ~~and~~ Subpart M [Fall Protection] ~~of "Part 1926 – Safety and Health Regulations for Construction"~~ and the further requirements for fall protection for workers contained in the following Subparts of OSHA: ~~as follows:~~

(JC129)

MD: Please refer the notes against JSSS 2.1.4 (1)

We acknowledge JICA comment and are aware that the wording of the above can be simplified and also of the need for the many references throughout JSSS to be made consistent.

(a) OSHA 1926 Subpart L [Scaffolds];

(b) OSHA 1926 Subpart CC [Cranes and Derricks in Construction];

(c) OSHA 1926 Subpart R [Steel Erection];

(d) OSHA 1926 Subpart S [Underground Construction, Caissons, Cofferdams and Compressed Air];

(e) OSHA 1926 Subpart V [Electric Power Transmission and Distribution];

(f) OSHA 1926 Subpart X [Stairways and Ladders]

NK2: confirmed.

(2) This Section provides fall prevention solutions for a typical range of example circumstances but this is not intended to be restrictive in extent. The Contractor shall provide fall prevention solutions wherever demanded by the nature of the particular part of the Works.

(3) As a general rule, the Contractor shall take ~~fall restraint system~~ Personal Fall Restraint System (PFRS) measures wherever practicable rather than ~~fall arrest system~~ Personal Fall Arrest System (PFAS) measures. (JC129)

~~(4) JSSS 2.5 [*Fall Prevention*] shall be read in conjunction with other respective parts of JSSS.~~ (JC129)

JC129: deleted and modified.

2.5.2 Height Thresholds

The threshold for fall protection in construction work is 2 m.

The Contractor shall provide fall protection for all personnel, removing all fall hazards whenever any personnel are working 2 m or more above a lower level.

2.5.3 Facilities for Ascending and Descending

When carrying out work at heights of 2 m or more, the Contractor shall provide facilities that enable the Contractor's Personnel to safely ascend and descend from such work levels.

2.5.4 Risk Assessments

(1) Where there is any risk of fall for any part of the Works at the Site, the Contractor shall conduct a pre-assessment of the various types of fall protection systems to be used and the selected alternatives shall be shown in the Safety Plan.

(2) In advance of the commencement of any parts of the Works, the Contractor shall carry out such further risk assessment as necessary, including checking the following and recording the results:

(a) Working areas and the conditions of adjacent areas;

(b) Position, condition and surroundings at each anchorage for separately securing working line, lifeline or nets;

(c) Status of access leading to working areas and any anchorages; and,

(d) The presence or absence of protrusions where there is a risk of cutting or chafing of working line or lifeline or other fall prevention systems and their position and condition.

2.5.5 Handrails

(1) The Contractor shall provide handrails at places where there is risk of fall.

(2) Handrails shall be complete with top-rails, minimum 85 cm high and mid-rails at a height of 35 – 50 cm.

(3) Top-rails shall be designed to withstand 90 kgf. of horizontal force and mid-rails 70 kgf. (JC130) of horizontal force and sufficient uprights shall be provided to sustain these forces.

JC130: added.

MD3: Will change as above but please note that if we are using the International Metric System of SI Units kg appears correct.

(4) Handrails shall be fit for purpose, of rigid and sound condition, securely fixed, without excessive corrosion, deformity or damage of any kind.

(5) If handrails are temporarily removed for example to permit work to be carried out, the Contractor shall provide alternative safety measures including for example:

(a) Displaying appropriate warning signs;

(b) Assigning a Spotter to direct non-essential Contractor's Personnel away;

(c) Providing alternative fall prevention systems to Contractor's Personnel in that area including for example PFRS or PFAS or safety nets;

(d) Prohibiting entry to the working area of any unauthorised Contractor's Personnel; and

(e) Handrails shall be restored immediately after the necessity for removal has ended.

2.5.6 Toeboards

(1) Toeboards shall be provided to bottom of all handrails to prevent risk of Falling Objects.

(2) Toeboards shall be minimum 10cm high from top edge to the level of the Working Platform, runway or ramp.

(3) Where material ~~,~~ is piled to such height that a 10cm toeboard does not provide protection, panelling from floor to mid-rail, or to top-rail shall be provided. (JC131)

JC131: added and modified.

2.5.7 ~~Temporary Access Around the Site~~ Preventing Falls from Walkways (JC132)

JC132: revised.

(1) Walkways

For the purposes of interpretation:

"walkways" mean route or passage for safe movement of pedestrians including walkways, bridge type walkways, covered walkways, ramps, ladders and stepladders.

MD: see also the same "definition" used in JSSS 6.4. 1 (2).

NK2: no comment.

(2) Safe Routes

The Contractor shall provide walkways leading to, within and around the Site and any working areas within the Site.

These shall be designed and constructed to ensure the safe passage of Contractor's Personnel and shall be provided with temporary lighting and effectively maintained at all times.

The Contractor shall display signs clearly indicating the location, intended use and any restrictions and extent with directions so that the Contractor's Personnel can adhere to the routes.

Other construction activities will be prevented from obstructing these routes.

(3) Handrails

At any point where there may be a risk of Contractor's Personnel falling from temporary walkways, the Contractor shall provide handrails as specified in JSSS 2.5.5 [*Handrails*].

Alternatively, the Contractor shall provide fall prevention equipment with the same or better functionality.

2.5.8 Preventing Falls by Providing Temporary Working Platforms

(1) The Contractor shall provide a temporary Working Platform where Contractor's Personnel are carrying out any operation at a height 2 m or more above the base and where there is any risk that Contractor's Personnel may fall. (JC133)

(2) Temporary Working Platforms shall be constructed from steel tubular Scaffolding, system Scaffolding or other safe and secure types.

(3) Temporary Working Platform shall always have handrails. (JC133)

(4) If handrails are temporarily removed for construction purposes, the Contractor shall take the measures described in JSSS 2.5.5 [*Handrails*]

2.5.9 Preventing Falls from the Ends and Openings of Working Platforms

(1) The Contractor shall take measures to prevent any falls from ends, edges and around any openings in Working Platform. (JC133)

(2) The Contractor shall provide handrails to all ends, edges and openings.

(3) Alternatively, the Contractor may place covers over any openings, each of sound construction and designed with a bearing capacity of at least twice any likely superimposed load, including any materials, Plant or Contractor's Personnel.

(4) If for any reason it is not possible to provide handrails around working areas, or to provide covers or when covers are temporarily removed for construction purposes, the Contractor shall take the measures described in JSSS 2.5.5 [*Handrails*].

JC133: modified.

2.5.10 Measures for Preventing Falls during Excavation Work

The Contractor shall take all necessary measures to prevent falls during excavation work including for example:

(1) Providing fall prevention systems including temporary handrails or barriers, PFRS, PFAS or rope access.

(2) Taking appropriate measures to ensure that earth slopes do not collapse due to the fixing of any fall prevention system or to any contact of the ropes with the slope surfaces.

(3) Providing safe measures to allow Contractor's Personnel to escape from or move around any excavated slope. If it is not possible to take such measures due to the nature of the work, the Contractor shall install main ropes and have Contractor's Personnel use PFRS or PFAS. In such case, the main ropes shall be anchored securely to prevent them becoming loose or detached.

(4) Installing handrails where the slope shoulder is used as a walkway or passageway.

(5) Installing safe crossings over trench excavations at a maximum of 30m intervals and prohibiting all Contractor's Personnel from crossing on the shoring system.

(6) Providing safe means of access and egress using stairways, ladders, ramps and the like to all excavations such as trench, basement, footing excavations, which are 1.2 m or more in depth, generally requiring no more than 7.5m of lateral travel for Contractor's Personnel.

(7) Prohibiting all Contractor's Personnel from crossing on struts of Earthwork-Support.

2.5.11 Measures for Preventing Falls during Rope Access Work

(1) The Contractor shall take all necessary measures to prevent falls during rope access work including for example:

(a) Installing a lifeline to which the PFAS is attached in addition to the working line to which the PFRS is attached; and

(b) Ensuring that the working line, lifeline and harness have sufficient strength and that they have not suffered any damage, abrasion, deformation or corrosion and that the Contractor's Personnel are trained in the use and that they use them properly.

(2) In relation with the working line, lifeline and harness, the Contractor shall ensure that:

(a) The working line and lifeline are securely anchored to independent rigid supports vertically above the work location and cannot be detached;

(b) The working line and lifeline are of sufficient length to allow the Contractor's Personnel to move up and down safely;

(c) Measures have been taken to prevent cutting or chafing, such as providing covers, where there is a risk that the working line or lifeline may be cut or chafed due to protrusions;

(d) That the working line is anchored to two or more independent strong supports; and

(e) The positioning device shall be securely connected to the working line with connectors and the connecting devices shall be compatible with the working line used.

(3) The Contractor shall provide the following particular information in the Safety Plan and shall ensure that all Contractor's Personnel engaged in rope work are fully qualified and informed when doing so, including advising them of:

(a) Location of each anchorage used to secure the working line and lifeline;

(b) Types and strengths of the working line and lifeline to be used;

(c) Lengths of the working line and lifeline to be used;

(d) Protrusions where the ropes may be cut or chaffed and measures to prevent this;

and

(e) Measures to prevent Contractor's Personnel engaged in securing the working line and lifeline to the anchorages from falling.

(4) The Contractor shall also provide measures to prevent the risk of accident to any personnel from Falling Objects; by using covered walkways and PPE.

(5) The Contractor shall appoint an Operation Leader who shall work with the rope work team at all times throughout their assignment and direct the work based on the Safety Plan and perform the following duties:

(a) Inform all Contractor's Personnel engaged in rope work of the content of the Method Statement and Safety Plan before commencement of the work; (JC134)

(b) Check all equipment to be used on the day prior to commencement of the work, and repair, maintain or replace any equipment immediately if any defect is identified;

(c) Permit the Contractor's Personnel to commence work only after the measures have been taken to provide all working lines, lifelines, PFRS, PFAS and PPE; and

(d) Ensure Contractor's Personnel use PFRS and PFAS correctly and have them fix the PFAS to the life lines. (JC134)

JC134: added.

2.5.12 Further Measures for Contractor's Personnel

The Contractor shall take all necessary further measures to prevent falls during the Works including, for example, taking the following measures before any work commences:

(1) Conduct safety induction and education courses regarding fall risks for all Contractor's Personnel who shall work on locations and operations where there is a risk of falling.

(2) Prohibit the unauthorised removal of any fall prevention equipment and educate Contractor's Personnel on the dangers of this action.

(3) Educate Contractor's Personnel on the proper storage and management of all safety equipment, including for example PFRS, PFAS and PPE.

(4) Stop the work if there is a risk of bad weather such as strong wind, heavy rain, or snow.

2.5.13 PPE for Fall Prevention

The Contractor shall comply with the following requirements when Contractor's Personnel are subject to fall risks:

(1) The Contractor shall provide PFRS as follows:

(a) PFRS shall be the same as PFAS specified below but designed to restrict the movement of workers and prevent them from reaching the edge of or any openings in the working area and therefore eliminating the risk of a fall; and

(b) ~~PPE for~~ PFRS shall comprise of either a Safety Belt or Safety Harness, together with an anchorage, connectors and other necessary equipment, typically including a lanyard, lifeline and other devices. (JC135)

JC135: Deleted.

(2) The Contractor shall provide PFAS as follows:

(a) The PFAS shall be the full harness type and shall comprise of a body harness, connectors, lanyard, deceleration device, lifeline, anchorage, or suitable combination of these;

(b) The use of a Safety Belt for PFAS is prohibited except where there is any risk of

the Contractor's Personnel hitting the lower surface when the full harness type is used and the total fall clearance distance calculated as below, is less than the distance between the point at which a worker would be anchored and any lower level;

The total fall clearance distance for PFAS with a shock-absorbing lanyard is calculated as the total of free fall distance, deceleration distance, D-ring shift, back D-ring height, and safety factor. (Refer to OSHA Technical Manual General Information, Section V: Chapter 4 Fall Protection in Construction, III. Measurements for Assessing Fall Hazards and Controls, A. Total Fall Clearance Distance for PFAS.)

(c) PFAS shall withstand the total force exerted on the system by the Contractor's Personnel falling, including the weight of the system itself; and

(d) For shock absorbers, an appropriate specification and type shall be selected according to the free fall distance calculated from the Contractor's Personnel's working position (height of anchor point, length of lanyard, etc.).

(3) The PFRS and PFAS shall bear the name of the manufacturer and the date of manufacture and shall be easily visible.

(4) Inspection of any safety equipment

Before starting work using PFRS or PFAS, the systems and anchorages to which the systems are to be attached shall be inspected and defective, damaged, worn-out or missing parts or components shall be replaced.

2.5.14 ~~Portable~~ Ladders and Stepladders

MD: see suggestions and comments in 6.4.4.

NK2: no comment.

For further requirements, refer to JSSS 6.4 [*Walkways, ~~Ladders and Stepladders~~*]

2.5.15 Work on Roofs and Other Areas

(1) Where Contractor's Personnel are carrying out work on roof at a height of 2 m or more, PFRS or PFAS shall be used with secure and safe anchorages.

(2) The Contractor shall, ensure that PFRS or PFAS are inspected before each use and declared safe for use with no defective, damaged, worn-out or missing parts or components.

(3) Prevention of Fall Risks on Floors, Fragile Roofs and Other Surfaces

When working on, accessing or crossing, floor or roof areas (including uncompleted areas under construction), or fragile roofs such as those covered with slates, tiles or other non-loadbearing coverings or where there is any risk of breaking and/or (JC136) falling through such areas, the Contractor shall provide continuous bearing boards for workers to walk on, with a minimum width of 60 cm or sufficiently wider to provide safe transit and where necessary to spread the bearing load on the surface and avoid penetration. The boards shall be fixed together and secured to the underlying surface by tying with ropes or clips to prevent any movement.

Unless otherwise approved by the HSO, handrails shall be provided to one or both sides.

If the underlying surface or roofing is too fragile for such measures and access is required, the Contractor shall provide an independent Scaffolding boarded walkway with handrails both sides, which does not bear upon the existing roof but that is supported independently by a Scaffolding structure. (JC136)

JC136: added and modified.

(4) Demolition or Alteration of Buildings and Structures

When carrying out demolition or alteration of buildings or structures and where there is a risk of Contractor's Personnel falling, the Contractor shall take the following measures:

(a) Appoint an Operation Leader to be engaged on the work;

(b) Safely supervise the work; and

(c) Inform and train Contractor's Personnel engaged in the said work so that they are aware in advance of the work methods and procedures.

2.5.16 Safety Nets

(1) The Contractor shall provide safety nets when workplaces are more than 7.50m above the lower ground level or water surface level and where the use of another type of fall prevention system is impractical or has been removed.

(2) Operations shall not be undertaken until the net is in place and has been inspected and tested.

(3) Nets shall extend 2.5m beyond the edge of the work surface where Contractor's Personnel may be at risk and shall be installed as close under the working surface as practical but in no case more than 7.50m below such work surface.

(4) Nets shall be hung with sufficient clearance to prevent user's contact with the surfaces or structures below. Such clearances shall be determined by impact load testing.

(5) The mesh size of nets shall not exceed 15 cm by 15 cm. All new nets shall bear a label of proof test from the manufacturer that they can withstand 23,700 Nm minimum impact resistance. Edge ropes shall provide a minimum breaking strength of 2,270kg.

MD3: kgf or as above, please note that if we are using the International Metric System of SI Units kg appears correct.

(6) Forged steel safety hooks or shackles shall be used to fasten the net to its supports.

2.6 FALLING OBJECTS

2.6.1 General

The Contractor shall take all necessary measures to avoid danger and prevent damage and injury to Contractor's Personnel, Employer's Personnel and any other persons including third parties that are on or adjacent to or in the vicinity of the Site whether connected with the Works or otherwise, and who may be at risk from Falling Objects.

In general, this shall be accomplished by:

(1) Providing secure temporary barriers to prevent or capture Falling Objects, designed by the Contractor to be of sufficient strength to capture all Falling Objects without perforating and where necessary shall be of an aesthetic design to be approved by the Engineer.

(2) Providing a safe means of raising and lowering Goods, tools, waste and debris.

(3) Providing an exclusion zone with temporary barriers and all other necessary measures to prevent persons and traffic from entering areas where Falling Objects could be a risk, including providing pedestrian and traffic diversions.

Exclusion zone shall also be provided where protective mesh sheets or toeboard are not installed or where they are temporarily removed due to the nature of the work

(4) Using PPE.

(5) Providing coloured warning tape, barriers and signage warning of "DANGER FALLING OBJECTS" in addition to all other preventive measures.

2.6.2 General Preventive Measures

(1) All horizontal boarded areas of Scaffolding shall be provided with substantial and continuous toeboards to all edges in accordance with JSSS 2.5.6 [*Toeboards*].

(2) Mesh sheet (debris net) shall be provided under and around all edges to cover all openings of Scaffolding horizontal boarded areas.

(3) Continuous and secure debris nets shall be provided to vertical sides of all Scaffolding or openings of external walls where there is no Scaffolding.

(4) Safe walkways with secure roof and walls shall be provided over entrances and exits.

(5) Protective canopies, safety fans or projecting shelves shall be provided to the edge of all roofs and to all vertical faces wherever there is a risk particularly over entrance and exits, working areas, walkways and roads, including those on areas beyond the Site boundary.

(6) Protective roofs shall be provided wherever there is a risk over working areas, walkways, footpaths and roads.

(7) All protective structures including roofs, canopies, safety fans, projecting shelves over walkways shall be fit for the purpose intended and provide a secure protective barrier capable of supporting Falling Objects and of sufficient size and dimensions to give full coverage and protection.

(8) Personnel must be prevented from entering any areas below Scaffolding where there is a risk of Falling Objects through the provision of barriers and signage. (JC137)

JC137: modified.

(9) If any protection is temporarily removed then a Spotter shall be assigned to prevent personnel entering the hazard area.

(10) A Spotter shall also be assigned to direct traffic and pedestrians where diversions are necessary.

(11) Use and control of mesh sheets to prevent objects from falling shall be as follows;

(a) Sheet shall have a mesh size of 12 mm or less or a mesh size corresponding to the size of expected Falling Objects;

(b) Sheet shall comply with BS 7955, composed of polyester material, reinforced as necessary to withstand the impact load of Falling Objects;

(c) Sheets that are damaged or which contain any irregularity shall not be used;

(d) If sheet is removed temporarily to suit the work operation, measures must be applied to avoid any risk of accident whilst it is removed and it must be restored immediately after the work operation is completed;

(e) Mesh sheets shall be inspected at least once a week and replaced immediately if any damage is found; and

(f) If there are any Falling Objects on the mesh sheet, these shall be removed before any work starts. The occurrence shall be reported to and investigated by the HSO to prevent any reoccurrence.

(12) When the work place is close to public or private areas, roads, footpaths, buildings or houses and the like along or outside the Site boundary and where there is any risk that Falling Objects could endanger the safety of traffic and third parties in such areas, and in addition to the above preventive measures, the Contractor shall take all responsibility, make all necessary arrangements with such third parties and/or all relevant authorities, insure, serve all notices, pay all charges and provide all necessary protective facilities and services including:

(a) Provision of mesh screens, safety fans, projecting shelves, temporary roofs over walkways or the like to protect such public or private areas, roads, footpaths, buildings or houses and all property, traffic, pedestrians and other persons thereon; and

(b) Safe and efficient diversion of all traffic and persons (in addition to the above or if the above measures cannot be taken) by providing all temporary barriers, signals, lighting and signs and placing a Spotter to direct traffic and pedestrians.

2.6.3 Falling Tools and Equipment

(1) The Contractor shall take appropriate measures to avoid the risk of injury or damage arising from dropped or falling tools including for example the following:

(a) Securing tools and materials;

(b) Use tool holsters, pouches, lanyards, etc.;

(c) Use debris nets, catch platforms or canopies to catch or deflect falling tools; and

(d) Use tethered tools, either with built-in connection points placed by the manufacturer or retrofitted connection points and connect tools to a lanyard. Tools can either be connected to a worker through a tool belt, harness or wristband, or anchored to a fixed structure.

2.6.4 Preventive Measures against Dust and ~~Windblown~~ Debris (JC138)

(1) For work where there is a risk of ejected or windblown dust and debris, (for example from stone crushing, concrete batching, cutting and grinding operations and the like), the Contractor shall:

(a) Enclose areas where such operations are taking place and provide protective screens or covers on storage areas;

(b) ~~Comply with the provisions of JSSS 4.2.2 [*Defects and Repair During Operation*] for small tools including equipment condition,~~ Maintain equipment and tools in

good condition, use of covers and safety guards and procedures for preventing danger due to tool breakage etc.; and (JC138)

JC138: deleted and added.

(c) Ensure that workers use appropriate PPE such as head, face and eye protection to prevent accident or injury.

(2) In strong winds and storms, the Contractor shall take measures to prevent wind-borne materials, etc. according to JSSS 2.7.3 [*Measures for Strong Wind and Storms]*.

2.6.5 Preventive Measures against Dropping Objects

(1) The Contractor shall prohibit Contractor's Personnel from throwing or dropping objects (e.g. Scaffolding clips), generally and in no event from heights of 3m or above.

(2) The Contractor shall use a crane to bring objects down from heights of 3m or above. Alternatively, the Contractor may provide enclosed chutes to bring down objects and in addition, shall prohibit entry to the chute area or assign a Spotter.

(3) Chutes shall be designed to prevent objects being scattered over the surrounding area.

2.6.6 Prevention of Accumulation of Goods at Height

(1) The Contractor shall prohibit the accumulation and storage of Goods at high levels particularly on Scaffolding and in locations where such Goods are at any risk of falling due to the effect of wind, vibration, water or gradient.

(2) Goods shall generally not be stored or allowed to accumulate within 1m of platform or work floor edges and openings or the like.

(3) When temporarily stored at height, Goods shall be restrained by ropes or sheets to prevent them from falling or slipping.

(4) Goods that are likely to scatter or spread, shall be suitably constrained by tying, boxing or bagging.

2.6.7 Working Above or Below Other Persons

(1) As a general and prevailing rule, the Contractor shall prohibit his workers from working concurrently above or below other persons. To achieve this the Contractor shall carefully coordinate the work location, content, timing of the work operations between his assigned workers.

MD: not only other workers

(2) In exceptional circumstances where this is unavoidable due to the nature of the work, the Contractor shall increase the supervision and the safety procedures described in this Section to ensure that the risk from Falling Objects is avoided. Workers shall be given further training, provided with PPE and additional working equipment (e.g. slings for tools, safety nets and/or hanging bags) in order to provide additional protection and a Spotter shall be assigned while such overhead operations are being carried out.

2.6.8 Loose Rock, Boulders and the like

(1) If loose rock, boulders, trees and the like, are positioned above working areas and where there is any risk that these may pose a danger to Contractor's Personnel or Contractor's Equipment working below, unless otherwise instructed by the Engineer, the Contractor shall carefully remove such items and if necessary:

(a) Propose further safety measures to the Engineer;

(b) Consult with the Engineer and if appropriate, obtain the Engineer's Instructions for the required further measures to be taken, such as installation of temporary protective barriers; and (JC139)

JC139: added.

(c) Prohibiting Contractor's Personnel from entering the working areas until the above items have been removed or the further measures have been taken.

2.7 ADVERSE WEATHER REQUIREMENTS

2.7.1 Preventive Measures

(1) Whenever adverse climatic conditions render it ~~too~~ dangerous to continue, the Contractor shall stop affected work at the Site, take preventive measures to ensure the safety of all Contractor's Personnel engaged on that work and inform the Engineer accordingly.

(2) Before, during or after adverse climatic conditions, the Contractor shall:

(a) Stop work at heights if there is any danger of falling;

(b) Stop work if there is a possibility ~~of~~ that such work may be dangerous due to possibility of electrical shock, slippery conditions or poor visibility and the like during rain, snow or fog, and inform the Engineer accordingly;

(c) Inspect the Works and all Goods intended to be incorporated in the Works or used thereon (including any temporary structures) for damage and risk of causing any danger before resuming work. If any damage or risk is found, the Contractor shall immediately take necessary action to prohibit entry in accordance with JSSS 2.3 [*Prohibition of Entry ~~– Dangerous Work~~*], inform the Engineer accordingly and if appropriate, request his instructions; and (JC140)

(d) Inspect Goods for damage and risk of any danger before resuming work. If any damage and risk is found, use Contractor's Equipment and Temporary Works only after making the necessary repairs or replacement.

JC140: deleted and added.

2.7.2 Measures for Heavy Rain

~~For~~ When heavy rainfall takes place or is anticipated at the Site and the surrounding area, the Contractor shall: (JC141)

(8) Take measures to prohibit entry in accordance with JSSS 2.3 [*Prohibition of Entry – ~~Dangerous Work~~*] at the following locations:

(a) Places where landslides could be anticipated;

(b) Places where there is a risk of flow of material and equipment and soil runoff; and

(c) Places where there is a risk of damage due to flash floods, lake or river flooding.

~~(9) Take measures such as evacuation of Contractor's Personnel and Goods to a safe place for preventing them from being submerged, washed away or overturning due to loosening of the ground.~~

~~(10) Take measures to protect temporary facilities from damage arising out of flooding or landslide, such as initially constructing them in safe locations, moving them to a safe place, reinforcing the ground and the facilities, diverting or drawing water from behind the facilities to prevent collapse.~~

(11) Take measures to prevent the Goods from being submerged, washed away or overturning, for example preparing, wherever possible, stock yard at a safe place, evacuating materials and equipment to a safe place, etc. (JC141)

JC141: deleted and modified.

2.7.3 Measures for Strong Wind and Storms

For strong wind and storms at the Site and the surrounding area, the Contractor shall:

(1) Take measures to prevent capsize, overturn or movement of Contractor's Equipment particularly ~~high~~ tall equipment such as cranes, pile drivers, pile drilling rigs and the like.

Where possible, lower the boom of ~~high~~ tall equipment and tie to a secure anchor with

steel cable to ensure stability and prevent any risk of overturning.

(2) Always store and/or if necessary evacuate Goods to a sufficient distance away from overhead power and communication lines to prevent damage and injury.

(3) Take the following measures, as necessary, for Scaffolding and Working Platforms.

(a) Remove or furl mesh sheets to reduce wind load;

(b) Prevent Scaffolding from collapsing or sliding by dismantling Scaffolding or adding or reinforcing wall connectors;

(c) Dismantle or reinforce Scaffolding projecting from buildings by supporting ropes, cables or additional struts and bracing; and

(d) Securing Goods on Scaffolding, or lowering them to ground level.

(4) Discontinue work at elevated places.

(5) Take measures to prevent scattering of Goods, waste and debris. (JC142)

JC142: modified.

2.7.4 Measures for Heavy Snow and Ice

For heavy snow or ice at the Site and the surrounding area, the Contractor shall:

(1) Take fall prevention measures in snow such as setting of poles or red flags to demarcate roads, footpaths and waterways.

(2) Take fall prevention measures for workers in icy conditions or snow, by ice or snow removal on roads, platforms, stairs, ramps, slopes, passages, Scaffolding, canopies, safety fans, projecting shelves and the like.

(3) Remove snow from roofs, canopies and signs, notice boards.

(4) Prohibit works on Scaffolding, Working Platforms or staging if snow or ice is present except after its careful removal. (JC143)

JC143: modified.

2.7.5 Measures for Lightning

(1) The Contractor should recognise lightning as an occupational hazard and take precautions to prevent exposure of all Contractor's Personnel thereto.

(2) Before commencing any outdoor work, the HSO shall ensure that local weather forecasts have been checked and wherever necessary and possible, that work has been rescheduled to avoid workers being caught outside in hazardous weather conditions.

(3) When working outdoors, Operation Leaders and workers shall continuously monitor weather conditions so that wherever possible they remain aware of the likelihood of thunderstorms.

(4) The HSO shall identify and inform workers of buildings to be used for shelter when heard thunder is heard or lightning is observed. Such shelters shall be fully enclosed and preferably shall have earthed electrical wiring and plumbing. Workers shall remain in shelters for at least 30 minutes after hearing the last noise of thunder.

(5) If suitable buildings are not immediately available, workers shall be instructed to shelter in enclosed rubber-tyre vehicles with windows closed and to remain there for at least 30 minutes after hearing the last noise of thunder. Tracked excavators, cranes or similar types of Contractor's Equipment shall not be used.

(6) The Safety Plan shall include lightning safety procedures which shall:

(a) Inform of all required actions when personnel hear thunder or see lightning, or

perceive other signs of approaching thunderstorms;

(b) Indicate how information is to be disseminated amongst personnel on the Site;

(c) Identify locations and requirements for safe shelters;

(d) Indicate response times necessary for all personnel to reach safe shelters; and

(e) Specify methods to determine when to stop and resume affected work activities.

(7) The Contractor shall display signs with information on lightning safety.

(8) The Contractor shall provide adequate training to all personnel on lightning safety with the safety induction training required by JSSS 1.20.

(9) Unless otherwise determined to be safe by the HSO, the Contractor shall prohibit any hazardous exposed work and external work at heights during thunder storms including for example:

(a) work on or from Scaffolding;

(b) work on or by cranes or hoists or similar Contractor's Equipment;

(c) work on tops of walls, exposed, elevated slabs or roofs;

(d) work on the erection or removal of steel structures; and

(e) Work on the erection of steel reinforcement and other metal components .

JC144: web のリンクを張られている箇所がここを含めて 2 か所のみ（もう一つは 2.9.1（8））あるのですが、こういうやり方でなければ引用できないのであれば残す、そうでなけれ別の引用方法を考えることとしてください。

There are two locations in JSSS which refer to website (another is 2.9.1 (8)). If it is essential/avoidable to specify requirements by method of referring to the websites, they will be left as they are, if not please propose another method to refer to.

MD: Please refer to the above redrafting to incorporate the main points from the OSHA recommendation.

NK2: agreed to the redrafting.

2.7.6 Measures for Earthquake and Tsunami

To the extent that time is available and forewarning is given, the Contractor shall evacuate workers to the designated meeting place in the event of earthquakes or tsunamis when the relevant authority issues a warning for the occurrence or prediction of earthquakes or tsunamis.

2.7.7 Inspection of Temporary Works after Adverse Weather and Earthquake

Following the occurrence of any adverse weather or after any earthquake and before re-commencing any work, the Contractor shall:

(1) Perform a visual inspection.

(2) Check all measured values of any instruments to ensure the safety of Temporary Works.

(3) When abnormality (JC145) is found in instruments, recalibrate or replace them.

(4) If any damage or fault is found in the TW, immediately carry out repair, replacement and/or reinforcement works, as necessary.

(5) Keep the Engineer informed of inspection and monitoring results.

JC145: malfunctioning or damage?

MD: Although "abnormality" is appropriate, I prefer an alternative however this wording is very frequently used in your draft so I have preserved this thinking that it is more understandable by your team.

Please advise if you require this to be altered and we will change throughout.

NK2: I checked the use of abnormality . Japanese OHS regulations use "abnormality" at all clauses for "異常" in Japanese and "abnormal". However, OSHA, BS, GC do not use at all. They use "fault" and "damage".

JSSS shall be international document but not only for Japanese. However, as MD suggested considering JSSS users are Japanese consultants and contractors, we will propose to use “abnormality” (abnormal is used at 29 locations in JSSS).

Up to here, JICA comments and NK modification are inserted by NK on 2020/7/29.

2.8 FIRE PREVENTION

2.8.1 Fire Prevention and Firefighting Facilities

MD: Is there no necessity to refer to OSHA 1926.151 Fire prevention.?

NK2: we referred to it in draft stage. I don't think necessary to add it in this stage.

Unless otherwise specified in the Particular Safety Specification, the Contractor shall take measures and provide facilities for fire prevention and fire-fighting and shall ensure that such measures are readily available and at all times at the Site and at any offices and accommodation for Contractor's and Employer's Personnel.

(1) Fire Response Plan:

The Contractor shall:

(a) Prepare a Fire Response Plan detailing the proposed fire prevention and fire-fighting measures and facilities and include this as a part of the Safety Plan;

(b) Designate a person (or persons) responsible for fire prevention, fire-fighting and also for evacuation in the event of a fire;

(c) Prepare a firefighting training plan as a part of the fire prevention and fire-fighting plan; and

(d) Carry out all training and keep records of such training in accordance with JSSS 1.19.6 [*Records of Education and Training*].

(2) Fire Response Measures and Facilities:

The Contractor shall:

(a) Provide fire hoses, hose-reels, fire hydrants and similar equipment, and temporary water supply where considered necessary by the HSO;

~~(b) Ensure that an adequate temporary water supply is available as and when required;~~ (JC145)

(c) Provide fire extinguishers and fire blankets according to the area and purpose of use, such as for ordinary fires, oil fires, electric fires and the like;

Fire extinguishers shall be regularly inspected, refilled, serviced and certified as such by a qualified and independent safety company approved by the Engineer; and

(d) Prohibit smoking anywhere on the Site other than designated smoking areas, and implement effective fire prevention measures by placing buckets filled with water or sand in smoking and other dangerous areas.

(e) Train Contractors Personnel and ensure that a team or teams is available to respond in the event of a fire and in advance or in place of attendance by any public firefighting service.

JC145: added and deleted.

2.8.2 Measures for Evacuation

In the event of a fire, the Contractor shall facilitate evacuation by:

(1) Creating an evacuation route map if necessary and post this in easy-to-see places.

(2) Display the evacuation routes as necessary at all work places.

(3) Install multiple evacuation routes and staircases for buildings with 2 or more floors and a capacity of 30 people or more~~, or in the shafts and for underground work~~. (JC146)

JC146: deleted as it is impossible in places such as tunnel.

(4) Establish a communication method to inform the Contractor's Personnel, Employer's Personnel and any other persons that are on the Site so that they are aware of danger and that they must evacuate due to a fire.

2.8.3 Management of Flammable and Combustible Materials

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS and unless otherwise approved by the Engineer, the Contractor shall take necessary measures for fire prevention complying with OSHA 1926.152 [Flammable liquids] and OSHA 1926.153 [Liquefied petroleum gas (LPG)] ~~the technical requirements specified in OSHA Subpart F, Fire Protection and Prevention 1926. 152 for the usage and storage of flammable and combustible materials or 1926. 153 Liquefied petroleum gas (LPG) or other relevant OSHA standards for other flammable or combustible materials, OSHA Standard Part 1926, Subpart F, 152 "Flammable liquid", 153 "Liquefied petroleum gas (LPG)"~~ or other relevant OSHA standards for the use and storage of flammable and combustible materials (JC147)and gases, including ~~for example:~~ (JC148) gasoline, kerosene, light oil, heavy oil, creosote oil, gear oil, cylinder oil, and other lubricating oils and organic solvents such as acetone, toluene, LPG and other gases including oxygen, acetylene etc. (hereinafter collectively referred to as "flammable and combustible materials" in this Section).

JC147: 正確に表現してください。

Please express correctly.

OSHA Standard Part 1926, Subpart F , 152"Flammable liquid", 153 "Liquefied petroleum gas (LPG)" or other relevant OSHA standards

NK: modified as above comment.

JC148: deleted.

MD: Further modified to be consistent with other OSHA references and as coordinated with NK.

NK2: no comment.

In addition, the Contractor shall:

(1) Appoint a person who is appropriately qualified, skilled and experienced in handling flammable and combustible materials, to be responsible for the storage and handling flammable and combustible materials and notify the name of such person to the Engineer.

(2) Store flammable and combustible materials in a purpose-built building or compound, fit for the intended purpose, well ventilated and secure, and protecting the stored materials from direct sunlight and extreme heat.

(3) Take measures to prohibit entry to unauthorised personnel and display signage prohibiting the use of flame.

(4) Determine handling methods of flammable and combustible materials, which shall be notified to the Engineer, and ensure Contractor's Personnel are fully aware of the methods.

(5) Provide fire prevention and firefighting facilities appropriate to the stored flammable and combustible materials.

2.8.4 Fire Prevention Measures for Electric and Gas Welding and ~~Gas~~ Cutting (JC149)

The Contractor shall refer to and comply with JSSS 6.8 [*Electric and Gas Welding and Cutting*] for the fire prevention requirements for electric and gas welding and cutting works.

JC149: deleted.

2.9 PPE AND FIRST AID

2.9.1 PPE

(1) General

(a) Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the Contractor shall provide all necessary and required PPE free of ~~any~~ charge, to all Contractor's Personnel, ensure that this is used properly, kept in good condition and replaced in the case of being worn-out, lost or damaged; (JC149)

(b) PPE shall comply with the ~~additional~~ requirements of this Section; (JC149)

(c) The Contractor shall ensure as a minimum and mandatory requirement, that all Contractor's Personnel are provided with the following PPE and the Contractor shall make sure that all Contractor's Personnel wear or use such PPE as appropriate whenever they are on the Site:

(i) Head Protection; and

(ii) Protective Footwear.

(d) The following additional PPE shall be provided whenever required by the working environment:

(iii) Eye and Face Protection;

(iv) Ear Protection;

(v) Respiratory Protection;

(vi) PPE for PFRS and PFAS (Safety Harnesses, Safety Belts and the like);

(vii) Gloves; and

(viii) Body Protection.

(e) The particular requirements for PPE are not repeated in each Section of JSSS but appropriate PPE must always be provided by the Contractor.

(f) PPE described (4) to (11) are mere examples but not exhaustive, and the Contractor shall provide further PPE at his cost to the Contractor's Personnel when and where any work requires specific PPE. (JC150)

JC149: deleted and added.
JC150: blanket 規定を入れた方が良い。Added. It is better to specify blanket requirement.

(2) Additional Inspection, Testing and Maintenance

Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] and unless otherwise required by the manufacturer or approved by the Engineer:

(a) Frequently used PPE shall be inspected, tested and maintained at least once a month; and

(b) Occasionally used PPE shall be inspected before every use and tested and maintained at least once every three months.

The HSO shall also conduct regular checks to ascertain any requirements for the following:

(a) Inventory and reorder supplies;

(b) Follow-up with the manufacturer on maintenance issues; and

(c) Schedule of training and retraining. (JC151)

JC151: deleted and added.

(3) PPE Signage Requirements

(a) The Contractor shall display signage at specific places at the Site where the wearing of PPE is mandatory;

(b) Such signage shall include for example:

"Head Protection Must be Worn"

"Eye* Protection Must be Worn"

(* face, ear or other)

(4) Head Protection

Head protection shall protect workers' heads and necks against injury from falling or flying objects, risk of head bumping, hair getting tangled in machinery, chemical drips or splash, climate or temperature, reduce the impact from tripping or falling and protect against electric shocks.

Head protection shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.1: Applicable Standards for Head Protection

	Standard	Title of Standard
1	JIS T8131	Industrial Safety Helmets
2	ANSI Z89.1	Industrial Head Protection
3	BS EN 397	Industrial Safety Helmets

(5) Protective Footwear

Protective footwear shall protect against foot injury due to crushing by superimposed loads, impact injuries from dropped or Falling Objects, foot injuries from treading on sharp penetrating objects, injuries from electric shock and also shall increase adhesion preventing workers' from slipping and falling.

Protective Footwear shall have a variety of sole patterns and materials to help prevent slips in different conditions, including oil or chemical-resistant soles. It can also be anti-static, electrically insulating or thermally insulating, appropriate footwear shall be selected for the risks identified

Protective footwear shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.2: Applicable Standards for Protective Footwear

	Standard	Title of Standard
1	JIS T8101	Protective footwear
2	ASTM F2413	Standard Specification for Performance Requirements for Protective (Safety) Toe Cap Footwear
3	BS EN ISO 20346	Personal protective equipment – Protective footwear

	BS EN ISO 20349	Personal protective equipment. Footwear protecting against risks in foundries and welding

(6) Eye and Face Protection

Eye and face protection shall protect workers' eyes and face from harmful materials (for example dust, chemicals, liquid splash, flying objects, molten metal, ~~chemicals~~, gas and steam, extreme light, flashes and hazardous rays, dirt and debris, etc.) (JC152)

JC152: deleted and added.

Eye and face protection can include safety spectacles, goggles, face masks, face shields, visors and the like. Selected protection shall have the right combination of /impact/dust/splash/molten metal eye and face protection for the task and shall be selected for the risks identified.

Eye and face protection shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.3: Applicable Standards for Eye and Face Protection

	Standard	Title of Standard
1	JIS T 8141 JIS T 8142	Personal eye protectors for optical radiations Personal face protectors for welding
2	ANSI Z87.1	American National Standard for Occupational and Educational Personal Eye and Face Protection Devices
3	BS EN 166 BS EN ISO 4007	Personal eye protection. Specifications Personal protective equipment. Eye and face protection. Vocabulary

(7) Ear Protection

Ear protection shall protect workers' hearing against injury from continuous, loud or Intense Noise by providing soundproofing.

The Contractor shall ensure that workers are still able to receive and immediately react to oral instructions and danger warnings when wearing ear protection.

Ear protection shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.4: Applicable Standards for Ear Protection

	Standard	Title of Standard
1	JIS T 8161	Ear protectors
2	ANSI/ASA S12.6	Methods for Measuring the Real-Ear Attenuation of Hearing Protectors

3	BS EN ISO 4869-1	Acoustics. Hearing protectors. Subjective method for the measurement of sound attenuation
	BS EN ISO 4869-2	Acoustics. Hearing protectors. Estimation of effective A-weighted sound pressure levels when hearing protectors are worn
	BS EN ISO 4869-3	Acoustics. Hearing protectors. Measurement of insertion loss of ear-muff type protectors using an acoustic test fixture
	BS EN ISO 4869-4	Acoustics. Hearing protectors. Measurement of effective sound pressure levels for level-dependent sound-restoration ear muffs

(8) Respiratory Protection Equipment (RPE)

~~RPE shall protect workers' airways, lungs and related bodily systems against damage and injury from Harmful Substances or from oxygen-deficient atmospheres when other controls are either not possible or insufficient on their own.~~

~~Selection and use of RPE shall be in accordance with HSE publication HSG53 (Fourth edition, published 2013), (https://www.hse.gov.uk/pubns/priced/hsg53.pdf) (JC153), RPE must be both adequate and suitable, whereby:~~

JC153 same comment to 2.7.5. (JC144)

JC144: web のリンクを張られている箇所がここを含めて 2 か所のみ（もう一つは 2.9.1（8））あるのですが、こういうやり方でなければ引用できないのであれば残す、そうでなければ別の引用方法を考えることとしてください。

There are two locations in JSSS which refer to website (another is 2.9.1 (8)). If it is essential/avoidable to specify requirements by method of referring to the websites, they will be left as they are, if not please propose another method to refer to.

MD: Refer to our notes under JSSS 2.7.5. I would prefer to refer to the HSE Guide as it is very comprehensive, however the above simple redrafting incorporates some of the main points from the HSE Guide together with the existing reference to ANSI Z88.2-2015 in Table 2.9.5 below, should be sufficient but please review and advise if there are any further requirements.

NK2: agreed to MD's rewriting below.

RPE shall protect workers' airways, lungs and related bodily systems against damage and injury from Harmful Substances or from oxygen-deficient atmospheres when other controls are either not possible or insufficient on their own.

RPE shall be selected with due consideration of:

(a) the Hazardous Substance(s) and the concentration in the air (exposure);

(b) the form of the substance in the air (e.g. gas, particle, vapour);

(c) the type of work being carried out;

(d) the specific wearer requirements, such as other PPE or a need for spectacles.

~~Selection and use of RPE shall be in accordance with HSE publication HSG53 (Fourth edition, published 2013), (https://www.hse.gov.uk/pubns/priced/hsg53.pdf),~~

RPE shall be:

(a) Correct for the Hazardous Substance such that it reduces exposure to the level required to protect the wearer's health; and

(b) Correct for the wearer, task and environment, such that the wearer can work freely and without additional risks due to the RPE.

RPE shall fit properly and filters shall be of the correct type as each filter is effective for only a limited range of substances. Filters have only a limited life and shall be changed regularly to maintain performance.

When replacing parts such as filters, use only manufacturers original parts, ensure that the correct type is selected and fit in accordance with the manufacturer's instructions.

Where there is a shortage of oxygen or any danger of losing consciousness due to exposure to high levels of harmful fumes, the Contractor shall only use breathing apparatus, never a filtering cartridge.

RPE shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.5: Applicable Standards for RPE

	Standard	Title of Standard
1	JIS T 8151 JIS T 8157	Particulate respirator Powered air purifying respirator
2	BS EN 149: 2001+A1: 2009 BS EN 14593-1: 2018	Respiratory protective devices. Filtering half masks to protect against particles. Respiratory protective devices. Compressed air line breathing devices with demand valve. Devices with a full-face mask.
3	ANSI Z88.2-2015	Practices for Respiratory Protection

(9) Safety Harnesses and Safety Belts

PPE for PFRS shall prevent the risk of workers falling from a height or sliding down slopes.

PPE for PFAS shall arrest a worker in a fall from a height or sliding down slopes.

For further requirements on PPE for PFRS and PFAS, refer to JSSS 2.5.13 [*PPE for Fall Prevention]*.

PPE for PFRS and PFAS shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.6: Applicable Standards for PPE for PFRS and PFAS

	Standard	Title of Standard
1	JIS T8165	Personal fall-arrest systems
2	ANSI Z359.0 to Z359.16	ANSI/ASSE Z359 Fall Protection and Arrest Standards Package
3	BS EN 361	Personal protective equipment against falls from a height. Full body harnesses

(10) Gloves

Gloves shall protect workers' hands from electric shocks, sparks during welding and fusing work, molten metal, heated metal, etc., and shall reduce the vibrations transmitted to workers' hands by tools, machines, etc.

Gloves shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.7: Applicable Standards for Gloves

	Standard	Title of Standard
1	JIS T 8113 JIS T 8114	Protective Leather Gloves for Welders Vibration isolation gloves
2	ASTM D120 ANSI S2.73	Standard Specification for Rubber Insulating Gloves Mechanical vibration and shock – Hand-arm vibration
3	BS EN 60903 BS EN 12477	Live working. Gloves of insulating material Protective gloves for welders

(11) Body Protection

If the HSO considers necessary, (JC154) Contractor's Personnel shall be supplied with and shall wear suitable body protection appropriate for the working environment.

JC154: added.

Risks such as from chemical or metal splash, spray from pressure leaks or spray guns, contaminated dust, impact or penetration, entanglement of own clothing, hot and extremely cold work; and the like shall be considered and avoided through the provision where necessary of special protective clothing. This may include for example flame-retardant, anti-static, chain mail, chemically impermeable, and high-visibility clothing and the like.

Body Protection shall be selected and provided for the risks to be identified.

Body Protection shall be kept reasonably clean and shall be replaced when worn out or damaged.

2.9.2 First-Aid

(1) General

The Contractor shall ensure that trained personal and adequate first-aid equipment and supplies shall be readily available at the Site. First-aid kits shall be stored at selected locations on the Site where they are most likely to be needed; they must be accessible with the minimum of delay.

(2) Training

A representative number of Contractor's Personnel selected by the HSO shall be trained in first aid (including CPR ~~cardiopulmonary resuscitation~~) to a minimum standard of that recommended by the International Federation of Red Cross and Red Crescent Societies standard course or equivalent.

MD: Already defined in Annex 1.1

NK2: no comment.

(3) First Aid Kits

(a) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for first aid complying with ~~the technical requirements specified in~~ OSHA 1910 Subpart K [Medical and First Aid] ~~of Part 1910 – Occupational Safety and Health Standards".~~

MD: Formatted for consistency as coordinated with NK.
NK2: no comment.

(b) First Aid kits shall comply with ANSI Z308.1 and unless otherwise specified in the Particular Safety Specification, Class A first aid kits shall be provided at the working area(s) on Site and one Class B safety kit shall be provide at the sick bay.

(c) All persons working at the site need to be aware of their purpose and location. Adequate signage shall be provided at the Site to show the location of the first aid kit(s).

(d) Each first-aid kit shall contain the specified items and quantities listed in ANSI Z308 as follows:

(i) Adhesive Bandage;

(ii) Adhesive Tape;

(iii) Antibiotic Application;

(iv) Antiseptic;

(v) Breathing Barrier;

(vi) Burn Dressing (gel soaked);

(vii) Burn Treatment;

(viii) Cold Pack;

(ix) Eye Covering, with means of attachment;

(x) Eye/Skin Wash;

(xi) First Aid Guide;

(xii) Hand Sanitiser;

(xiii) Medical Exam Gloves;

(xiv) Roller Bandage;

(xv) Scissors;

(xvi) Splint;

(xvii) Sterile pad;

(xviii) Tourniquet;

(xix) Trauma pad; and

(xx) Triangular Bandage.

(e) Each first-aid kit shall contain any additional items and quantities that may be necessary according to the requirements and location of the Works.

(f) The Contractor shall ensure that the following additional items are provided with each first aid kit:

(i) A list of emergency phone numbers;

(ii) Flashlight and extra batteries; and

(iii) Bottled drinking water.

(g) To prevent disease transmission when giving first-aid, first-aid kits shall contain PPE such as disposable gloves, CPR breathing barriers, eye protection and like supplies.

(h) ~~Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] and unless otherwise required by the manufacturer or approved by the Engineer,~~ First aid kits shall be inspected ~~tested and maintained~~ at least once a month. (JC155)

The HSO shall also conduct regular checks to ascertain any requirements for the following:

(i) Inventory and reorder supplies;

(ii) Follow up with the manufacturer on maintenance issues; and

(iii) Schedule of training and retraining. (JC155)

JC155: deleted and added.

MD: No need for addition.

NK2: no comment.

(4) Automated External Defibrillator – AED

(a) Unless otherwise specified in the Particular Safety Specification, and amongst any other first-aid equipment to be provided by the Contractor, the Contractor shall provide at least one AED at the Site;

(b) The AED shall be stored at a selected location on the Site where it is most likely to be needed and it must be accessible with the minimum of delay;

(c) All personnel at the site shall be kept informed of the purpose and location and the Contractor shall train a sufficient number of personnel in its use;

(d) Adequate signage shall be provided at the Site to show the location of the AED together with instructions for its use;

(e) ~~Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] and unless otherwise required by the manufacturer or approved by the Engineer,~~ The AED~~'s~~ shall be ~~inspected and maintained at least once per month~~ regularly ~~be~~ inspected in accordance with the manufacturer's instructions as follows: (JC156)

JC156: deleted and modified.

(i) Visually inspect looking for dirt, damage, or contamination;

(ii) Inspect electrodes ensuring that they are unexpired and in their original, sealed packages, two sets shall be provided;

(iii) Test primary battery;

(iv) Make sure a backup battery is stored with the AED and test backup battery; and

(v) Keep the AED charged and check it is maintaining a charge.

The HSO shall also conduct regular checks to ascertain any requirements for the following:

(vi) Inventory and reorder supplies;

(vii) Follow up with the manufacturer on maintenance issues; and

(viii) Schedule training and retraining.

(f) The AED shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.7: Applicable Standards for AED

	Standard	Title of Standard
1	BS EN 60601-2-4:2011+A1:2019	Medical electrical equipment, Part 2-4: Particular requirements for the safety of cardiac defibrillators

CHAPTER 3: EXISTING UNDERGROUND, CONCEALED AND OVERHEAD SERVICES

3.1 UNDERGROUND AND CONCEALED SERVICES

3.1.1 General~~ly~~ (JC157)

JC157: General と Generally Clause レベルのタイトルで General と Generally が混在している。3.1.1 及び 3.2.1 を Generally から General に修正し、General に統一しています。但し、「〇〇 Generally」の様に何か具体的なものを冒頭においている場合には Generally のままにしてあります（例 6.1.1 Design and Provision of Temporary Works Generally）

There is mixed use of "General" and "Generally". "General" is used For 3.1.1 and 3.2.1. "xxx Generally" to show concrete something is used for e.g. 6.1.1 Design and Provision of Temporary Works Generally.

(1) This Section applies where there are existing underground or concealed pipes, cables, wires, ducts and the like within the Site (hereinafter collectively referred to as "Underground or Concealed Services"), which may require locating, preserving, avoiding and protecting, diverting, removing, relocating or replacing by the Contractor. The Employer shall provide, at the request of the Contractor, such reasonable assistance as to allow the Contractor to carry out such work. (JC158)

JC158: added.

MD: Why? No connection with safety; plus the meaning is not clear and it may not be correct as a general rule. Please also refer to GC 2.2

Please refer to our comments and concerns expressed in our report of 29/06/20

NK2: JICA want to specify this from beginning of preparation of JSSS though it is not safety matter because JICA want the Employer to take actions to assist the Contractor as there are insufficient preparation and assistance of the Employer for works in 3.1. We leave this aaddition of JICA without further discussion.

(2) If Underground or Concealed Services are the property of a relevant authority and unless otherwise specified in the Particular Safety Specification, the Contractor shall, in accordance with the agreement between the Employer and the owner of Underground or Concealed Services regarding the actual scope of work to be carried out, comply with the official regulations and procedures of the authority. (JC159)

JC159: added.

(3) In the case of Underground or Concealed Services which are the property of a third party, the Contractor shall take the procedure of obtaining permission for the work mentioned in (4) below.

(4) In accordance with the agreement between the Employer and the owner of Underground or Concealed Services regarding the actual scope of work to be carried out, permission for its execution and details of the procedures and requirements (including responsibility for insurance and safety procedures), the Contractor (with reasonable assistance of the Employer ~~and Engineer~~) (JC160) may consult with the owner of Underground or Concealed Services to obtain permission to execute the work following the preparations described in JSSS 3.1.2 [*Preparation and Work Planning*] as well as the requirements of the Contract and the instruction of the Engineer.

JC160: deleted.

(5) In the case of Underground or Concealed Services which are the property of the Employer, the permission mentioned in (4) above shall be deemed to have been provided by the Employer subject to the preparations described in JSSS 3.1.2 [*Preparation and Work Planning*].

3.1.2 Preparation and Work Planning

(1) Unless otherwise specified in the Particular Safety Specification, the Contractor shall make the following preparations prior to commencing any work for locating, protecting,

diverting, removing, replacing or the like of any Underground or Concealed Services:

(a) Prepare a ~~detailed~~ (JC161) Method Statement describing the measures for carrying out the required work and ensuring the safety of all persons engaged thereon;

JC161: deleted.

(b) Prepare an emergency call list and communication procedure;

(c) Obtain particular information from the Employer or relevant authority on the procedures for emergency disconnection/de-energisation (JC162) of the Underground or Concealed Services in case of an accident;

JC162: added for utilities such as water supply pipelines . 配管等水系のユーティリティを考慮

(d) Provide and use cable avoidance tools or cable locators, trace the position and routes on ground surfaces, walls and floors of all Underground or Concealed Services, mark routes with paint and/or wooden pegs or barriers and clear signage and ensure that no unauthorised work take place within the area;

(e) Conduct careful exploratory hand excavation to locate the exact position, depth and route of the Underground or Concealed Services and proceed to expose and protect same or prepare for the required work; and

(f) The Method Statement shall be revised based on the information obtained from the above locating and exploratory work.

(2) In case Underground or Concealed Services of which existence are predicted at the Site, but not shown in the Contract, the Contractor shall inform the Engineer of the existence for the Engineer's instruction to the Contractor.

(3) Machine excavation shall not be allowed when there is any risk that Underground or Concealed Services may exist in the location or vicinity of the excavation.

(4) The Contractor shall take all measures necessary to ensure the protection and safety of road traffic, pedestrians, Contractor's Personnel and any other persons affected by or potentially affected by the Works as required by the Contract and also by JSSS including JSSS 2.2 [*Risk Control Around the Site*].

3.1.3 Requirements and Precautions

Unless otherwise specified in the Particular Safety Specification, the Contractor shall:

(1) Protect and secure all Underground or Concealed Services throughout the execution of the Works and avoid all damage to such services and adjacent areas, particularly when backfilling, compacting and reinstating surfaces.

(2) Take care not to damage the Underground or Concealed Services when using power tools for example asphalt cutting machine to break through paved surfaces above Underground or Concealed Services.

(3) Take care to safely (JC163) expose, support and protect any drains, other services (new or existing) which follow or cross the route of Underground or Concealed Services.

(4) Reinstate surface paving with material and methods specified, ~~paying attention not leave~~ without leaving (JC163)any difference in level with surrounding pavement and replace all surface markings and signage.

JC163: deleted and added.

(5) Adequately test all Underground or Concealed Services after completing any diversion, replacement or alteration work, to ensure the safety and integrity and to avoid any future risk of injury, leakage or pollution.

(6) Implement strict safety and fire prevention measures throughout the work including

prohibiting the use of equipment that can create any damage or fire hazard (such as welding, cutting and electrical equipment) in the vicinity of any Underground or Concealed Services conveying flammable, combustible or explosive liquids or gases.

(7) Be aware of and avoid ~~all risk of~~ (JC164) electric shock when excavating for or near any cables, wires or cable ducts, ensure the safety of all Contractor's Personnel and ensure the provision and use of PPE.

(8) Be aware of and avoid ~~all risk of~~ (JC164) subsidence or collapse of excavations due to Contractor's Equipment, vehicles, other equipment or other activities being too close to any excavation.

JC164: deleted.

(9) Provide adequate temporary barriers, signage, markings and lighting to all areas where work on or adjacent to Underground or Concealed Services is taking place.

(10) Assign a full time Spotter in accordance with the requirements of JSSS 2.4 [*Spotters, Flagmen and the Like*] when work in progress poses any risk to the Underground or Concealed Services, Contractor's Personnel or the Works.

(11) Provide electrical cable marker tiles over all buried wires, cables and cable ducts to warn and protect against the risk of future mechanical damage to same.

(12) Provide permanent markers or signage at the surface to warn of the presence, route and any danger of any Underground or Concealed Services.

(13) Prepare as-built drawing of Underground or Concealed Services after completion of the associated work showing accurate positions, depth, sizes, routes and details and submit to the Engineer.

3.1.4 Information to Contractor's Personnel

Prior to the start of work to or in the vicinity of Underground or Concealed Services, the Contractor shall instruct relevant Contractor's Personnel of the following:

(1) Location of live cables and equipment.

(2) Risk of electric shock from live cables or equipment.

(3) Separation distances from live cables and equipment.

(4) Work procedure.

(5) Preventive measures against electric shock.

(6) PPE to be used.

(7) Electric shock treatment in accordance with JSSS 3.1.5 [*Electric Shock Treatment*].

(8) Response in the event of an accident in accordance with JSSS 1.24 [*Accident Response Plan*] and JSSS 1.25 [*Measures at the Time Accidents Occur*].

(9) Appropriate procedures in the case of accidents arising from contact with or damage to any other services.

3.1.5 Electrical Shock Treatment

The following measures shall be taken in the event of an electric shock accident.

(1) Prohibit workers from touching the chassis or body of any Contractor's Equipment or materials that have become electrified by any live circuit and keep all Contractor's Personnel well away from such equipment, materials and the working area.

(2) When the unit of Contractor's Equipment which is in contact with or in close proximity to a live circuit does not get an electrical shock, the operator shall immediately move the equipment to an adjacent safe location.

(3) When it is not possible to move the Contractor's Equipment away, the operator shall remain in the cabin until the affected live circuits are de-energised.

(4) Prevent secondary electric shock accident by permitting only those who have received training in electrical rescue to rescue the casualties of an electric shock accident.

(5) Immediately perform primary lifesaving measures such as CPR, if necessary use an Automated External Defibrillator (AED) and call for emergency medical support.

(6) Report to the Engineer in accordance with JSSS 1.25 [*Measures at the Time Accidents Occur*] and where applicable to the representative of the relevant authority.

3.2 OVERHEAD SERVICES

3.2.1 General~~ly~~ (JC165)

JC165: deleted.

(1) This Section applies where there are exposed or overhead power or communication cables, wires, ducts, pipes and the like within the Site (hereinafter collectively referred to as "Overhead Services"), and which may require preserving, protecting, diverting, removing, relocating or replacing by the Contractor. The Employer shall provide, at the request of the Contractor, such reasonable assistance as to allow the Contractor to carry out such work. (JC166)

MD: see notes under JSSS 3.1.1.

NK2: our comment is same as that for JSSS 3.1.1.

(2) If Overhead Services are the property of a relevant authority and unless otherwise specified in the Particular Safety Specification, the Contractor shall, in accordance with the agreement between the Employer and the owner of Overhead Services regarding the actual scope of work to be carried out, comply with the official regulations and procedures of the relevant authority. (JC166)

JC166: added.

(3) In the case of the Overhead Services which are the property of a third party, the Contractor shall take the procedure for the works mentioned in (4) below.

(4) In accordance with the agreement between the Employer and the owner of Overhead Services regarding the actual scope of work to be carried out, permission for its execution and details of the procedures and requirements (including responsibility for insurance and safety procedures), the Contractor (with reasonable assistance of the Employer and Engineer) may consult with the owner of Overhead Services to obtain a permission of the owner of Overhead Services to execute the works following the preparations described in JSSS 3.2.2 [*Preparation and Work Planning*] as well as the requirements of the Contract and the instructions of the Engineer.

(5) In the case of Overhead Services which are the property of the Employer, the permission mentioned in (4) above shall be deemed to have been provided by the Employer subject to the preparations described in JSSS 3.2.2 [*Preparation and Work Planning*].

3.2.2 Preparation and Work Planning

(1) Unless otherwise specified in the Particular Safety Specification, the Contractor shall make the following preparations prior to commencing any work for protecting, diverting, removing, replacing or the like of any Overhead Services:

(a) Prepare a detailed Method Statement describing the measures for carrying out the required work and ensuring the safety of all persons engaged thereon;

(b) Prepare an emergency call list and communication procedure; and

(c) Obtain particular information from the Employer or relevant authority on the procedures for emergency de-energisation of the Overhead Services in case of an accident.

3.2.3 Requirements and Precautions

Unless otherwise specified in the Particular Safety Specification, the Contractor shall:

(1) Protect and secure all Overhead Services throughout the execution of the Works.

(2) Adequately test all Overhead Services after completing any diversion, replacement or alteration work, to ensure the safety and integrity and to avoid any future risk of injury, leakage or pollution.

(3) Be aware of and avoid ~~all risk of~~ (JC167) electric shock when working near any cables or wires, ensure the safety of all Contractor's Personnel and ensure the provision and use of PPE.

(4) Be aware of and avoid ~~all risk of~~ (JC167) subsidence or collapse of support structures of Overhead Services due to excavations being too close.

JC167: deleted.

(5) Provide adequate temporary barriers, signage, markings and lighting to all areas where work on or adjacent to Overhead Services is taking place.

(6) Provide insulating protective pipe or casings to the Overhead Services.

(7) Create safe zones free from danger arising from the use Contractor's Equipment by demarcating the route and turning ranges and providing adequate signage and barriers.

(8) Prevent Contractor's Equipment, wire ropes or chains from entering the safe zones and limit the moving range of crane jibs and other high equipment.

(9) Assign a full time Spotter in accordance with the requirements of JSSS 2.4 [*Spotters, Flagmen and the Like*] when work in progress poses any risk of close proximity or contact with Overhead Services, Contractor's Personnel or the Works.

(10) Maintain a safe separation distance between any charged electrical circuit and Contractor's Personnel, Contractor's Equipment, Scaffolding and any other Temporary Works, wire rope, tools and materials. The separation distance shall be the maximum relevant value shown in the following Table 3.2.1, any values that may be prescribed by the Laws ~~and regulations~~ (JC168) of the Country or any values that may be prescribed by the regulations of the relevant authority:

JC168: deleted.

Table 3.2.1: Safe Separation Distances

	Circuit Voltage	Separation Distance
1	Extra-high Voltage (7000V and above)	2m (20cm to be added for every 10,000V increase and fraction from 60,000V)
2	High Voltage (600V up to 7000V)	1.2m
3	Low Voltage (Less than 600V)	1m

3.2.4 Information to Contractor's Personnel

Prior to the start of work to or in the vicinity of Overhead Services, the Contractor shall instruct relevant Contractor's Personnel of the same items as listed in JSSS 3.1.4 [*Information to Contractor's Personnel*]

3.2.5 Electrical Shock Treatment

The Contractor shall take the measures prescribed in JSSS 3.1.5 [*Electrical Shock Treatment*].

CHAPTER 4: CONTRACTOR'S EQUIPMENT

4.1 GENERAL REQUIREMENTS

4.1.1 Scope

(1) This Chapter specifies the safety requirements for Contractor's Equipment which shall include mobile equipment, static equipment, small equipment, tools and electric power equipment as further described in the following Clauses ~~paragraphs~~.

(2) The Contractor shall ensure the safety of all Contractor's Personnel, Employer's Personnel and any other persons that are on the Site, adjacent to the Site and other places where they may be affected by Contractor's Equipment in operation, standby or storage or when such equipment is being maintained or transported.

(3) For additional requirements for hoisting, rigging and cranes, refer to JSSS 5 [*Hoisting and Rigging*].

(4) Any reference to "operator" in this Chapter and elsewhere in JSSS shall be deemed to include "driver" also.

(5) Mobile equipment including wheeled or tracked, self-propelled construction machinery such as:

(a) Surface excavation and spoil movement equipment for bulk excavation, grading and levelling, such as bulldozers, graders and tractor excavators;

(b) Excavators such as backhoes, face shovels, power shovels;

(c) Loaders such as payloaders and face shovels;

(d) Dump trucks for removal or importation of spoil;

(e) Specialist foundation equipment such as pile driving and boring equipment;

(f) Compaction and surface treatment equipment such as smooth or sheepsfoot rollers, pneumatic and vibration rollers, asphalt finishers;

(g) Mobile cranes;

(h) Piling equipment;

(i) Concreting equipment such as ready-mixed concrete trucks and pump trucks;

(j) Demolition equipment such as breakers, concrete crushers and demolition grippers;

(k) Transportation Equipment, such as cars and buses for Contractor's Personnel and trucks and trailers for transporting Goods to, around and from the Site; and

(l) Workboat for diving works.

(6) Static equipment includes powered stationary equipment such as:

(a) Stone crushing plants and screening equipment;

(b) Concrete and asphalt concrete batching plants;

(c) Tower cranes, derrick cranes;

(d) Elevators;

(e) Material conveyors;

(f) Air compressors;

(g) Engine Generators, submersible pumps and engine pumps; and

(h) Reinforcement, cutting and bending machines.

(7) Small equipment and tools such as:

(a) Hand steered vibrating rollers;

(b) Plate compactors and vibratory rammers;

(c) Portable conveyors; (JC169)

JC169: revised.

(d) Pipe bending machines;

(e) Drills, hammers, breakers, compactors and compressors;

(f) Wood processing equipment;

(g) Independent concrete mixers;

(h) Air extract or blowing equipment for improving the working area environment;

(i) Jack hammers, drills;

(j) Chain saws;

(k) Hand operated equipment such as jacks, winches, lever hoists; and

(l) Hand tools such as wrenches, chisels, hand saw, picks, hammers.

4.1.2 Compliance Standards

(1) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], the Contractor shall comply with the requirements of this Chapter, read jointly with and including ~~the further technical requirements of~~ the Provision and Use of Work Equipment Regulations 1998 (PUWER), HSE Guidance in UK.

MD: changed for consistency with the changes made to OSHA references.

NK2: no comment.

(2) In accordance with these regulations, together with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the Contractor shall ensure that all Contractor's Equipment provided for use upon the Works is:

(a) Suitable and fit for the purpose for which it is intended;

(b) Safe for use, maintained in a safe condition and inspected to ensure it is correctly installed and used and does not subsequently deteriorate;

(c) Used only by people who have received adequate information, instruction and training;

(d) Accompanied by suitable health and safety measures, such as protective devices and controls. These shall include emergency stop devices, adequate means of isolation from sources of energy, clearly visible markings and warning devices; and

(e) Used for the designed and intended purpose.

4.1.3 Manufacturer's Documentation

The Contractor shall obtain a copy of the following official Manufacturer's documentation for all units of Contractor's Equipment:

(1) Safety instructions and recommendations.

(2) Operation, maintenance and repair manual.

The Contractor shall inform all relevant Contractor's Personnel of the content of the same, provide further safety training as necessary and ensure full compliance by all relevant Contractor's Personnel with such instructions and recommendations to assist in enforcing the

safe use of Contractor's Equipment. (JC170)

JC170: added.

4.1.4 Instruction for Contractor's Personnel

Further to the requirements of JSSS 1.7 [*Contractor's Safety Plans*], JSSS 1.9 [*Contractor's Method Statements*] and JSSS 1.15 [*Contractor's Safety Management Activities*], the Contractor shall include details of the following in the Method Statement and Safety Plan for the ~~w~~ Works (JC171) involving the use of Contractor's Equipment and shall fully inform all relevant Contractor's Personnel associated therewith of all requirements before the commencement of any such operations, ~~including~~ such as: (JC172)

JC171: 混在しているので一部修正した箇所があります。

Works and work are mixed in their use, so revision is made at some places.

JC172: revised.

NK: original seems correct.

The original is correct. There are two uses generally; relevant work or works refers to a subject task(s); Works is a defined term under the Contract.

NK2: agreed and explain it to JICA.

(1) Scope of work, locations and areas, work methods, dimensions, levels and quantities to be achieved.

(2) Types, capacities and numbers of units.

(3) Workplaces, area limits and operational routes, restricted areas, locations of caution signs and fences.

(4) Preservation of safe access, walkways and footpaths around the working areas and transportation areas.

(5) Identities and roles of and location(s) for Spotters and the communication and signalling requirements, including equipment to be used.

(6) ~~Environmental impact including required~~ Working conditions and required mitigation measures for workers and any other persons against vibration, noise, dust and the like.

(7) Safety measures ~~for the environmental conditions~~ in the working area, any nearby areas for storage of Dangerous Goods or Hazardous Substances, Hazardous Areas, Operational Areas or areas where Dangerous Work is taking place.

(8) Potential danger to any persons who may be affected by the use of Contractor's Equipment and the required measures to avoid any accident or injury.

(9) Any potential hazards in the use of Contractor's Equipment including those which may create a risk of falling or overturning.

(10) Restrictions to the movement and operation of Contractor's Equipment such as existing structures, foundations, surfaces, underground or overhead services and Dangerous Goods storage.

(11) Measures to be taken in case of breakdown, defect or fault in Contractor's Equipment including location of areas for inspection and maintenance.

(12) Name of the authorised operator for each unit of Contractor's Equipment when authorised operator is necessary to be assigned.

(13) ~~The n~~ Name and contact of the HSO to inform when there are any requirements for inspection, maintenance and repair of Contractor's Equipment. (JC173)

JC173: deleted, added and modified.

4.1.5 Safety Training

(1) The Contractor shall provide the relevant Contractor's Personnel with health and safety training in accordance with JSSS 1.19 [*Safety Training Generally*] taking account of the characteristics of the particular types of Contractor's Equipment and including:

(a) Functions, performance, operation methods, inspection items, inspection method of safety and emergency alarm devices;

(b) ~~Work~~ Operation procedure, signal and communication method at starting time of the operation, and daily inspection;

(c) Lockout and tagout procedures for shutting down operation, turning off the power, locking the starter and necessary measures for the time of cleaning and inspection of the Contractor's Equipment;

(d) Stop of the operation of the Contractor's Equipment when an abnormality occurs and report to the person in charge;

(e) Prohibition of removal or isolation of safety devices; and

(f) Risks during operation of the Contractor's Equipment.

(2) Particular safety training for transportation equipment operators shall be for the purpose of preventing of traffic accidents on and off the Site and shall include:

(a) Driving rules in general;

(b) Compliance with speed limits, signs, alcohol use, drugs and all other requirements the Laws of the Country;

(c) Driving methods to avoid contact and collision with other persons, cycles, motorcycles and other vehicles;

(d) Driving methods to properly overtake other vehicles and to be undertaken by others;

(e) Driving methods when encountering holes, bumps or obstacles on the road;

(f) Required inspection and maintenance before starting operation; and

(g) Proper use of vehicles including behaviour and control of passengers, prevention of overcrowding, overloading and unauthorised passengers. (JC174)

JC174: deleted and added.

4.1.6 Requirements for Operators

Further to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*], the Contractor shall ensure that operators are appropriately qualified, skilled and experienced in operation of the Contractor's Equipment to which they are assigned and duly certified as such by the HSO.

(1) Operators shall safely and competently operate the Contractor's Equipment.

(2) Operators shall be fully aware of the following:

(a) Work procedures, hazards and operation methods;

(b) The need to stop the operation when any defect or abnormality is detected;

(c) The identity of and location(s) for Spotters and the communication and signalling requirements including equipment to be used; and

(d) The procedures in case of emergency.

(3) Operators shall:

(a) Keep all safety devices including emergency-alarm and stop-devices activated; (JC175)

JC175: added.
NK: It seems not necessary to add "-".

MD: Hyphen is OK.

NK2: no comment.

(b) Keep their assigned unit clean and carry out regular inspections prescribed by the Contractor before start of operation; and

(c) ~~Ensure that~~ Inform the Contractor's maintenance personnel ~~are made aware~~ of any apparent defect or maintenance requirements. ~~And that such personnel have performed any required repair or maintenance before the start of operation.~~ (JC176)

JC176: deleted and added.

MD: Not now the same meaning, the alternative wording is weaker and effectively means that equipment can be used even when defective. An operator should not be forced to use equipment which is defective, this clause now allows it.

NK2: do we add "and not use such Contractor's Equipment till any required repair or maintenance is performed?

NK3: have you added my proposed sentence?

4.1.7 Signalling

(1) Signalling between operators and any associated workers shall only be carried out by designated personnel.

(2) Spotters shall be located in a safe place and where they can clearly see and be seen by the operator.

(3) When it is not possible for Spotters to give direct visible and audible signals to the operator, other systems including hand-held radios or videophone must be provided and used.

4.2 INSPECTION, MAINTENANCE AND REPAIR

4.2.1 Requirements Generally

(1) Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the HSO shall ensure that all Contractor's Equipment is inspected, fully maintained and operational when it is mobilised to the Site. Thereafter all Contractor's Equipment shall be inspected, maintained and repaired before the commencement of the first and of all subsequent days of operation.

(2) Inspections shall include all items necessary to ensure the safe performance of the Contractor's Equipment including the following examples and any further requirements due to the characteristics, capability and condition of the Contractor's Equipment and in compliance with the manufacturer's official operation, maintenance and repair manual.

(3) When mobilising Contractor's Equipment to the Site and before commencement of operation, the Contractor shall:

(a) Inspect all units of Contractor's Equipment to ensure that:

(i) all components are installed and functioning; and

(ii) adequate covers and safety guards (to prevent contact with moving parts) are provided and securely fixed.

(b) Ensure as a minimum that the daily and periodical check items have already been

inspected and recorded;

(c) Ensure that all inspection and maintenance records are available for inspection by the Engineer if and when required in compliance with JSSS; and

(d) If any inspection and maintenance records are incomplete or not available, the Contractor shall carry out inspections and maintenance to ensure that a full and acceptable record is available for all units of Contractor's Equipment.

In relation with the above, it should be noted that Contractor's Equipment shall be in a working and safe condition and fully compliant with ~~the Contract~~ JSSS when it is mobilised to the Site. The Engineer may refuse to accept delivery to the Site any Contractor's Equipment which does not meet the requirements stipulated in t~~the Contract~~ JSSS. (JC177)

JC177: revised.

(4) The Contractor shall undertake the following daily inspection items, (or at intervals required by the manufacturer's official operation, maintenance and repair manual), carry out any necessary maintenance and repair, and when necessary obtain re-certification of the HSO before any further operation of the Contractor's Equipment is permitted:

(a) Operating condition of engine, gearbox(s), drive shafts, pulleys and main components, emergency stop and safety devices, any defects or abnormalities in covers, doors and enclosures;

(b) Abnormal sounds, vibrations or smell;

(c) Leaks, levels and condition of lubricants, coolant, hydraulic fluid levels, and the like;

(d) Lights and indicators;

(e) Brakes, clutches, steering and operating devices and working devices;

(f) Cables, slings, ropes and chains;

(g) Protective covers are adequately provided over all rotating or moving parts;

(h) Attachments and tools such as buckets, grabs and the like;

(i) Cleanliness of each unit or item of Contractor's Equipment;

(j) Cleanliness of each working area and removal of obstructions;

(k) Availability of emergency kits such as warning flares and triangles, fire extinguisher, first aid kit and the like, as required by the Laws of the Country with the testing and expiration date clearly indicated; and

(l) Any additional inspection items stipulated in the manufacturer's official operation, maintenance and repair manual.

(5) The Contractor shall undertake the following periodic inspection items, (at intervals required by the manufacturer's official operation, maintenance and repair manual), carry out any necessary maintenance and repair, and when necessary obtain re-certification of the HSO before any further operation of the Contractor's Equipment is permitted:

(a) Engine compression pressure, valve clearance and other relevant parts of prime energy unit;

(b) Gearbox, clutch, transmission, propeller shaft, differential and other parts of power transmission devices;

(c) Drive wheels, idling wheels, vertical trunk rollers, belts, tires, wheel bearings and other parts of traveling devices;

(d) Springs, shock absorbers and other parts of suspension devices;

(e) Left and right rotation angle of steering wheel, knuckle, rod, arm and other parts of control devices;

(f) Brake capacity, brake drum, brake shoe and other parts of braking systems;

(g) Blades, booms, link mechanisms, buckets, wire ropes and other parts of work equipment;

(h) Hydraulic pump, hydraulic motor, cylinder, safety valve and other parts of hydraulic equipment;

(i) Voltage, amperage and relevant performance and components of electrical systems;

(j) Body, operating devices, head guards, back stoppers, access doors, protective covers, ladders and steps, locking devices, warning alarm devices, direction indicators, tyre air pressures and lightning devices; and

(k) Any additional inspection items stipulated in the manufacturer's official operation, maintenance and repair manual.

(6) Operation of any unit of Contractor's Equipment shall not be allowed to commence until the HSO has certified that it is safe to do so.

(7) The Contractor shall prepare standard checklists for all inspections and the HSO shall ensure that these are complied with, completed and signed and kept as a record in accordance with JSSS 1.32 [*Health and Safety Records*].

4.2.2 Defects and Repair During Operation

(1) If an operator notices any defect or abnormality in the Contractor's Equipment during operation (such as abnormal noise, temperature, smell, etc.) the operator shall stop the operation immediately.

(2) Necessary repair shall be provided by qualified mechanics, electricians or engineers.

(3) The HSO shall ensure that no further operation shall resume unless the above has been complied with and the Contractor's Equipment has been re-inspected by him and certified in accordance with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPP*].

4.3 SAFETY REQUIREMENTS

4.3.1 General Safety Measures

In addition to other safety and health requirements of JSSS, the Contractor shall:

(1) Ensure that there is sufficient lighting to perform all work safely and provide artificial lighting where necessary.

(2) Ensure that Contractor's Equipment is equipped with suitable protective safety devices such as covers, screens, guards, contact prevention devices, auto-stop devices, enclosures, barriers and the like as necessary to prevent injury to personnel from equipment or parts of equipment, where:

(a) There may be any risk of persons being hit by, caught or injured or entangled in any ropes, cables, sheaves, moving or rotating parts; and

(b) There may be any risk of persons being hit by flying debris, offcuts, or the like produced by the equipment.

(3) Ensure that Contractor's Equipment is equipped with suitable ladders and steps for access to the operating cab and also to all other levels and components to permit inspection, assembly, maintenance and repair of the equipment. When any Contractor's Personnel

need to work at a height of 2 m or more, the Contractor shall take suitable measures in accordance with JSSS 2.5 [*Fall Prevention*], including the provision and use by ~~all~~ such Contractor's Personnel of guide ropes and PFAS. (JC178)

JC178: modified.

(4) Prohibit personnel other than operators, workers and other authorised personnel from entering the place where Contractor's Equipment is in use for the Works.

(5) Ensure that each unit of Contractor's Equipment is provided with appropriate numbers and types of fire extinguishing equipment (where such equipment is necessary) and ensure that all operators and other Contractor's Personnel are trained in the use of such equipment and in fire safety procedures.

(6) Ensure that each working area where Contractor's Equipment is in use, is provided with appropriate numbers and types of first-aid equipment and such other facilities that are necessary to ensure safety and treat accidents and ensure that all operators and other Contractor's Personnel are trained in the use of such equipment and first-aid procedures.

(7) Post a label clearly showing the name of the operator on each unit of Contractor's Equipment together with the name and contact number of the HSO or a person in charge who shall be contacted in the event of breakdown or fault.

(8) Ensure that only the authorised operating, inspection and maintenance personnel access the mechanical, electrical and other components and systems of the Contractor's Equipment and prohibit all other persons from such access.

(9) Ensure that any inspection and maintenance covers, safety guards to prevent contact with moving parts and the like are not disabled, tampered with or removed except for repair, maintenance or any other justifiable reason.

(10) Ensure that installation, assembly, testing commissioning, operation and dismantling of all Contractor's Equipment is carried out under the direction of an Operation Leader, appropriately qualified, skilled and experienced in such activities for the particular type and capacity of equipment and in accordance with the manufacturer's operation, maintenance and repair manual.

4.3.2 Safety Measures During Cleaning, Inspection and Maintenance

The Contractor shall take the following measures for safety of Contractor's Personnel during cleaning, inspection and maintenance. Until such measures are taken, the Contractor shall prohibit any cleaning, inspection or maintenance personnel or other workers from entering the areas. (JC179)

(1) ~~Perform inspection and maintenance work~~ Put Contractor's Equipment, wherever possible on a level surface. ~~Where unavoidable~~ Where such is not possible, ensure that wheels are securely chocked to prevent any movement of equipment.

(2) Provide safety blocks or supports under cargo bed of vehicles to prevent them descending unexpectedly ~~during inspection and maintenance~~.

(3) Lower attachments (buckets and blades etc.) to the ground during any inspection and maintenance. Where unavoidable ensure that attachments are securely supported to prevent any fall or downward movement.

(4) Stop and isolate the functions completely, establish and implement lockout and tagout procedures to prevent accidents during inspection and maintenance. The lockout and tagout system shall fully isolate the starting system.

(5) Post warning signs to prohibit start-up or use of any Contractor's Equipment ~~during inspection and maintenance~~.

(6) Assign a Spotter.

(7) Ensure that only authorised personnel have access to the cleaning, inspection and maintenance area. (JC179)

JC179: deleted and added.

4.3.3 Safety Measures During Operation

(1) Unless otherwise specifically permitted by the HSO, all work involving the use of Contractor's Equipment shall be designated as Dangerous Work and the Contractor shall enclose the working area with temporary fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry – Dangerous Work*].

(2) The Contractor shall also ensure that:

(a) All operators are able to clearly see and communicate effectively with Spotters and other relevant persons;

(b) No Contractor's Equipment is operating beyond the capacity or operational limits officially prescribed by the equipment manufacturer;

(c) The surfaces upon which the Contractor's Equipment is working, and any adjacent surfaces and areas over which access is required, are sound, safe and suitable to support the equipment and the Contractor shall provide any temporary foundations, hardstanding or other surfaces, sleepers or steel plates as are necessary to ensure safety and stability of the equipment at all times;

(d) Spotters are always be provided to enable precise movement and positioning of Contractor's Equipment, particularly when reversing, loading and unloading, in dangerous areas or when the operator's view is not clear and at intersections with public roads;

(e) Where there is any risk of turnover, slippage, collapse or fall, Contractor's Equipment is equipped with seatbelts or safety harnesses and that such seatbelts and harnesses are used;

(f) Where there is any risk of turnover, slippage, collapse or fall, Contractor's Equipment is equipped with a "Roll-Over Protective Structure" (ROPS);

(g) Where there is any risk of injury to operators due to Falling Objects Contractor's Equipment is equipped with a "Falling Object Protective Structure" (FOPS); (JC180)

(h) Operators are aware that they shall pay careful and constant attention to the position of any workers near to the operating area and particularly when mobile equipment is reversing;

(i) Operators of excavating equipment are aware that excavator buckets shall never pass over the operator's seat of another Contractor's Equipment; (JC180)

(j) Workers shall not enter under a bucket which is loading material and shall keep away from dump trucks when loading or unloading materials; and

(k) No person shall ride on trucks, trailers or cargo bed other than cabin of vehicles unless permitted by the Law of the Country.

JC180: revised and added. ("another" is necessary to make the stipulation meaning.)

MD: Use of "another" is not correct, "any other" would be better.

NK2: no comment.

4.3.4 Safety Measures When Mobile Equipment Is Not in Use

(1) When mobile equipment is not in use, the Contractor shall ensure that operators:

(a) Park on surfaces which are level, sound, safe and suitable to support the equipment;

(b) Securely chock all wheels to prevent any movement;

(c) Lower attachments (buckets and blades etc.) to the ground;

(d) Stop and isolate the functions completely, fully engage brakes and lock the brake pedal; and

(e) Lock the equipment and store the starter key in the designated place.

(2) The Contractor shall prohibit all persons other than authorised personnel from entering the area where Contractor's Equipment is parked.

4.3.5 Safety Measures During Connecting and Removing of Attachments

The Contractor shall take the following measures when connecting and removing attachments (buckets, blades etc.) to Contractor's Equipment:

(1) Prevent any accident due to movement or fall of attachments by taking safety measures for example, connecting and removing attachments after locating them on stable and sound frames or on the ground.

(2) Prevent accidental movement or operation causing persons to be trapped attachments by taking safety measures for example, parking of the Contractor's Equipment such that it cannot move (as mentioned in JSSS 4.3.4 (1) (a), (b) and (d)) and stop the engine.

4.3.6 Safety Measures During Loading and Transporting of Contractor's Equipment

The Contractor shall: (JC181)

JC181: added.

(1) Select and use trailers with associated ramps, other loading equipment and restraints which are suitable for the particular type, size and weight of the Contractor's Equipment and fit for the purpose for which they are intended.

(2) Select location and areas for loading and unloading which have sufficient space and surfaces which are level, sound, safe and suitable to support all of the equipment.

(3) Securely chock all wheels of trailers to prevent any movement.

(4) Stop and isolate the functions of trailers and load and fully engage brakes.

(5) Ensure trailers are equipped with tie down devices to allow secure fixing of load.

(6) Ensure that the weight and height of the loaded Contractor's Equipment does do not exceed actually required or legal limits.

(7) Ensure that all lights, brakes, steering and safety devices are working properly.

(8) Ensure that suitable, clear and legally compliant signage is attached to the trailer visibly indicating the maximum safe loading capacity, height of load, width, speed limits and any other restrictions or required information.

(9) Ensure that trailers are loaded evenly.

(10) Ensure that Contractor's Equipment loaded onto trailers is braked, wedged, securely locked in position and tied to the trailer with adequately sized chains, slings and other fixings and tensioned to prevent any movement during transit.

(11) Place any attachments on trailers and securely tie down.

(12) Inspect the tie-down tensioning, before and at intervals during transportation of Contractor's Equipment to ensure that there is no slackening.

(13) Inspect chains, slings and other fixings for securing transported Contractor's Equipment

and if any abnormality is found, replace immediately.

4.3.7 Safety Measures During Loading and Transporting of Goods

The Contractor shall: (JC181)

JC181: added.

(1) JC181: added. When transporting heavy or long Goods on public roads, select roads on which the transportation does not pose danger to other traffic, third parties, structures adjacent to the transportation route, obtain all necessary permission from the relevant authorities including police and road authority before commencement of transportation and comply with all requirements.

(2) When transporting heavy or long material Goods within the Site, select suitable routes where the transportation does not pose danger to existing permanent or temporary buildings or structures or other works and obtain the consent of the HSO before commencement of the transportation and comply with all requirements.

(3) Ensure that Goods are loaded evenly.

(4) Secure all loads with adequate and tensioned slings and cover with protective sheets, to avoid any fall or collapse of the conveyed articles and prevent any risk to workers and third parties.

(5) Inspect slings for securing transported materials and if any abnormality is found, replace immediately.

4.3.8 ~~Site Access Roads~~ Temporary Roads in the Site (JC182)

The Contractor shall: (JC181)

JC181: added.

(1) Take measures to ensure that ~~for ensuring~~ that ~~Site access roads~~ Temporary Roads in the Site are of suitable construction, of sufficient width, free from potholes, uneven settlement and collapse. (JC182)

JC182: revised.

MD: "In the Site" is not correct, these roads can also be outside the Site for the purpose of Site Access.

NK2: This is discussed with JICA regarding requirements for Site Access. JICA stated that because roads outside of the Project are managed by the public road authority, improvement, addition of signs, etc. specified in JSSS cannot be made by the Contractor. Therefore, the safety requirements to the Contractor is limited to the roads in the Project area.

We will leave as JICA specified.

(2) Provide signs indicating height and weight restrictions, bends, speed limits, intersections, dangerous places and the like (road shoulders, cliff edges.).

(3) Separate roads for vehicles and walkways for workers and provide passing area for vehicles at places where the road is narrow.

(4) In large construction sites, provide exclusive transport roads which are one-way if possible and provide passing areas on narrow roads.

(5) Provide sufficient lighting facilities at necessary places along roads when work operating in night.

4.3.9 Additional Requirements for Static Equipment

(1) The Contractor shall design and construct suitable foundations and support structures for static equipment with paved surfaces, screens, fencing and associated facilities for storage of material and product and for offices, access and the like all of which shall be suitable and fit for the purpose for which they are intended. Unless otherwise stated in the Contract, all such foundations, support structures, paved surfaces, fencing, screens

and associated facilities shall be demolished and removed and disposed of safely and in an environmentally acceptable manner by the Contractor ~~on~~ until completion and taking over of the Works. All areas shall be backfilled, restored to a safe and suitable condition, cleaned and landscaped~~, all to the approval of the Engineer~~. (JC183)

MD: why delete? This is a safe default.

NK2: "approval of the Engineer" are used only at 4 clauses, 4.7.1 (1) and (3), and 4.3.9 (1) and (2) in JSSS. NK guess JICA feel why approval of the Engineer is necessary only in this Section.

GC 11.11 Clearance of Site specifies these requirements. When we specify this approval here, JICA may ask if the approval is necessary in other clauses.

May I know your opinion to the above.

MD: These are substantial RC structures often requiring significant work in removal. The reason why I had injected approval of the Engineer here is because may require particular removal and landscaping different to my general description. It is not so important and can be deleted if it causes you a problem.

(2) Unless otherwise stated in the Contract, all remaining aggregate, rock, cement, bitumen and the like used by or processed with the static equipment shall be removed and disposed of safely and in an environmentally acceptable manner by the Contractor on completion ~~and taking over of the Works~~ of use of the static equipment. All areas shall be backfilled, restored to a safe and suitable condition, cleaned and landscaped~~, all to the approval of the Engineer~~. (JC183)

JC183: deleted and added.

Ditto

NK2: same as JC183.

4.3.10 Additional Requirements for Personnel and Goods Elevators and Material (JC183A) Conveyors

JC183A: added.

MD: Addition is not necessary, it already includes "materials" with the use of "Goods".

NK2: Material conveyors are included in 4.1.1 (6) Static equipment to make it separate from portable conveyor. So it is better to add "material" as done by JICA.

(1) General

(a) The requirements for conveyors stipulated in this Clause ~~apply to portable and~~ material conveyors;

(b) The Contractor shall undertake the daily and periodical inspection in addition to the items stipulated in JSSS 4.2 [*Inspection, Maintenance And Repair*], ~~JSSS 4.2.1 [*Requirements Generally*], (4) and (5)~~ (or at intervals required by the manufacturer's official operation, maintenance and repair manual), carry out any necessary maintenance and repair and when necessary obtain re-certification of the HSO before any further operation of the Contractor's Equipment is permitted; and

(c) The Contractor shall post the maximum load capacity and any restrictions on the use. (JC184)

JC184: added, deleted and modified. (The both 4.2 and 4.2.1 are not necessary to be mentioned.)

(2) Personnel and Goods Elevators

(a) Additional daily inspection items shall include checking for defects or operational faults with the following:

(i) Elevator enclosures, doors, guide-rails and runners;

(iii) Emergency stop and alarm systems;

(iv) Power, lighting and control systems;

(v) Interphone systems;

(vi) Brakes, clutches; and

(vii) Sheaves and pulleys.

(b) Additional periodical inspection items shall include checking for defects or operational faults with the following:

(i) Daily inspection items;

(ii) Wire ropes;

(iii) Winch and its foundation; and

(iv) Supporting structures, guy ropes, fixings and anchors.

(3) Material Conveyors (JC185)

JC185: added.

MD: Therefore, where are the requirements for "portable" conveyors and as queried before, what are they?

NK2: There are two type of conveyors, namely portable (movable) one and fixed (large scale) one as shown in phots below.

The requirements for "portable" conveyors are specified in 4.3.11 Additional Requirements for Small Equipment and Tools but not specially for the "portable" conveyors because "portable" conveyors are ones of Small Equipment stipulated in 4.1.1 (7) (C).

I do not know why JICA call static conveyor as material conveyor. As JICA want to specify as above, I will follow them.

Photos of material/fixed conveyor




Photos of portable/movable conveyor



(a) Additional safety measures: (typo)

MD: Advised earlier on 30/6/20.

NK2: I cannot find your advise regarding (a) in the above.

(i) Conveyor systems shall be equipped with an audible warning signal to be sounded immediately before starting up the conveyor;

(ii) Means for stopping the motor or engine shall be provided at the motor or

engine location;

(iii) Emergency stop switches shall be provided and be arranged so that the conveyor cannot be started again until the actuating stop switch has been reset to running or "on" position;

(iv) Where a conveyor passes over working areas, roads and walkways, suitable guards shall be provided to prevent fall of the materials being conveyed; and

(v) Riding of workers on the moving belts shall be prohibited.

(b) Additional daily inspection items shall include checking for defects or operational faults with the following:

(i) Overrun and reverse run prevention devices;

(ii) Emergency stop switches; and

(iii) Guards.

(c) Additional periodical inspection items, shall include for checking for defects or operational faults with daily inspection items.

4.3.11 Additional Requirements for Small Equipment and Tools

(1) Accessories and attachments shall be the standard types obtained from or recommended by the manufacturer of the equipment to which they are connected.

(2) Any repairs shall be carried out by competent persons approved by the HSO ~~and using the manufacturer's genuine or recommended spare parts.~~ (JC186)

JC186: deleted.

(3) All small equipment and tools shall be tested by the HSO as safe for use after any repair or replacement of parts, before such equipment is put back into use.

4.3.12 Additional Requirements for Electric Powered Equipment

(1) Electric powered equipment specified in this Clause shall include portable electric powered mobile equipment or tools and shall form a part of the small equipment and tools listed in JSSS 4.1.1 (7).

(2) The Contractor shall undertake the following additional daily inspection items, (or at intervals required by the manufacturer's official operation, maintenance and repair manual), carry out any necessary maintenance and repair and when necessary obtain re-certification of the HSO before any further operation of the Contractor's Equipment is permitted:

(a) Defects or operational faults with grounding such as disconnection of grounding wire and insecure fixing of grounding electrodes;

(b) Damage to insulation and protective coverings of all wires and cables including flexible cables; and

(c) Damage to plugs, sockets, transformers and all wiring fittings and appliances.

(3) The Contractor shall comply with the following additional safety requirements:

(a) Use waterproof switches and socket outlets with covers, securely fixed and located in accessible and dry places;

(b) Label and paint electrical power and switch boxes with warning signs and coloured hazard markings;

(c) Use rubber cabtyre cables for all electrical power equipment;

(d) Provide grounding to all electrical power supply systems with GFCI ~~(Ground fault~~

~~circuit interrupters)~~ or RCD ~~(Residual Current Devices)~~ ~~for in the electrical supply to electrical equipment~~ in accordance with JSSS 6.7.3 [*General Safety Requirements*];

(e) ~~Wherever possible provide an ELCB (Earth Leakage Circuit Breaker) or RCD (Current Sensing Residual Current Device) in the electrical supply to each item of electrical equipment; (JC186)~~

JC186: deleted and revised.
NK: NK is under review ELCB and RCD and will revise this (d). To MD, please wait for NK revision.

MD: noted; information received by email on 5/08/20 and above and following is modified and edited accordingly.

Abbreviation for GFCI (and RCD) included in Annex 1.1.

NK2: confirmed.

(f) ~~If for any reason, an ELCB or RCD cannot be provided, ensure that the metal exterior of the electrical power supply, metal outer casing of electric motors and the electrical equipment are all grounded;~~

(g) Avoid hanging electric cables and wires directly on nails, reinforcement or Scaffolding and the like to prevent damage to the insulation and protective covering;

(h) Turn off the power before repairing, moving or maintaining electric power equipment;

(i) Replace fuses with correct type and rating, prohibit replacing fuses with a higher rating or with iron or copper wire;

(j) Ensure that fuses are replaced by an authorised person;

(k) Prevent any use of electric power equipment from use in the rain, or when the user is wet, standing in water or is not wearing rubber soled insulated footwear or when the electric power equipment is wet;

(l) When any operational fault is identified immediately turn off the power, unplug and stop using the equipment and advise (or hand to) the HSO;

(m) Ensure that workers using electric power equipment wear appropriate PPE suitable for the electric power equipment in use such as working clothes, protective helmets, safety shoes, eye and face protection, ear protection; and

(n) When electric shock accident occurs, unplug and stop using the equipment and advise (or hand to) the HSO and take measures in accordance with JSSS ~~1.24 [*Accident Response Plan*]~~ 1.25 [*Measures at the Time Accidents Occur*]. (JC186)

JC186: changed.

4.3.13 Additional Safety Measures during Adverse Weather

Further to the requirements of JSSS 2.7 [*Adverse Weather Requirements*], the Contractor shall ensure that Contractor's Equipment is parked in a stable and secure state by taking all necessary measures including:

(1) Dropping the jib, boom, arm and attachments to ground level and securing where necessary with adequate anchors and chains.

(2) If heavy rain and flooding can be anticipated, moving Contractor's Equipment to higher ground or to places ~~where there is no~~ risk of instability is limited. (JC187)

(3) Removing snow or ice.

JC187: modified.

4.4 ROPES, SLINGS AND CHAINS

4.4.1 Requirements Generally

(1) The Contractor shall ensure that untested, uncertified, broken, damaged, deformed or defective ropes, chains or slings shall not be used.

(2) The safety factor for wire ropes, slings and chains shall be as recommended by the manufacturer of each type.

(3) Requirements for Ropes, slings and chains shall be as specified in JSSS 5.4 [*Rigging Equipment*].

4.5 ALTERNATIVE USE OF CONTRACTOR'S EQUIPMENT

4.5.1 Requirements Generally

The Contractor shall not use Contractor's Equipment for any other purpose than the purpose for which it is designed and other than the purpose recommended by the manufacturer.

Use of Contractor's Equipment for any other purpose than the originally intended purpose are allowed only if it is not prohibited by either of the Law the Country and the manufacturer's official operation, maintenance and repair manual and subject to HSO's approval after reviewing all the safety aspects.

In particular, when equipment for excavation is to be used for lifting, the HSO shall , in addition to other requirements provided in JSSS, confirm: (JC188)

JC188: 目的外使用のことをあまり長々と書きたくない。JSSS の他のところで読めるような部分は削除してよい。

JC does not want to specify about alternative use of the Equipment too long. The provisions which can be read in other parts of JSSS can be deleted.

(1) Rigging Equipment such as hook is attached on an appropriate part of the excavation equipment (e.g. arm or bucket).

(2) Arms, bucket, Rigging Equipment have enough strength to lift the load.

(3) ~~There is no risk that the~~ The lifting devices such as hook and shackles ~~will be detached from~~ are firmly attached to arm or bucket of the equipment.

(4) The lifting capacity for alternative use is confirmed by loading tests at the Site.

(5) ~~Ensure that operators understand the equipment capability, are properly trained in the alternative use, are fully aware of and follow the manufacturer's written instructions and load charts.~~

(6) Ensure that operators have accurately determined the total weight of the load, taking account of the weight of any attachments, the reach and angle and configuration of the equipment and have informed the HSO of this and obtained his permission before commencing the operation.

(7) ~~Check the working area and improve the ground surface as necessary to ensure the stability of the equipment.~~

(8) ~~Ensure that the equipment is stable, if provided lower stabilisers, if the equipment is equipped with a blade, lower the blade to the ground for added stability and ensure that necessary counterweights are in place.~~

(9) ~~Check the rigging to ensure it is appropriate to the use and rated to handle the load. Inspect it before each use for any signs of damage or wear, and make sure it is properly secured to the machine and load.~~

(10) ~~Ensure that the area is clear of any unnecessary personnel, Spotters should be the only individuals in the immediate area, and should be stationed clear of the lift area yet visible~~

~~to the operator throughout the operation.~~

(11) ~~Lift the load slowly, keep the lifting point directly over the centre of the load, keep the load as close to the machine and the ground as possible and position the equipment to hoist and lower end on, not sideways.~~

(12) ~~If there are any signs of instability or loss of control of the machine or load, discontinue the lift and lower the load to the ground.~~ (JC189)

JC189: deleted and added as commented in JC188.

4.6 HIRED/LEASED CONTRACTOR'S EQUIPMENT

4.6.1 Requirements Generally

(1) Contractor's Equipment from hire or lease companies shall comply with all of the requirements of ~~the Contract and~~ (JC190) JSSS as if it were the Contractor's own property, in particular the Contractor shall ensure compliance with the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

(2) The Contractor shall ensure that the hire/lease companies have performed all necessary inspection, maintenance and repair works before the Contractor's Equipment is mobilised to the Site and that the following is provided with the equipment to the Contractor upon mobilisation and is available for the inspection of the Engineer:

(a) Inspection and maintenance records;

(b) Operation, repair and maintenance manuals; and

(c) Spare and replacement parts, tools, maintenance equipment, lubricants, filters, hydraulic fluids and the like.

(3) The Contractor shall double-check to ensure that the inspection and maintenance has been carried out and if the Contractor has any doubt over the adequacy of such inspection or maintenance or if complete records are not made available, the Contractor shall not allow this Contractor's Equipment to be used upon the Works. The Contractor shall inspect and carry out full maintenance and repair on such equipment in compliance with the requirements of this Chapter before it is certified for use by the HSO and used upon the Works.

(4) Operators from hire/lease companies are by definition Contractor's Personnel and they shall be treated as if they are employed by the Contractor, in terms of compliance with ~~the Contract and~~ JSSS. (JC190)

JC190: deleted.

(5) Operators shall be tested and certified by the HSO, shall receive safety training and shall perform all inspection, maintenance and other requirements fully in compliance with JSSS, in the same way as the Contractor's own employees.

4.7 TEMPORARY FUELLING FACILITIES

4.7.1 Requirements Generally

(1) ~~Unless otherwise specified in the Particular Safety Specification,~~ When the Contractor ~~shall design and construct~~ uses temporary fuel storage and dispensing facilities at the Site for the use of Contractor's Equipment, the Contractor shall design and construct them so that they ~~. These facilities shall be~~ are substantial and secure and capable of storing and dispensing fuel in a safe and environmentally acceptable manner all to the approval of the Engineer. (JC191)

JC191: modified.

(2) The facility shall include storage tanks, suitable foundations, support or containment structures, protective bund walls as necessary, paved surfaces, screens, fencing and

associated facilities for storage of separate fuels and lubricants and for offices, access and the like all of which shall be suitable and fit for the purpose for which they are intended.

(3) Unless otherwise specified in the Contract, all such tanks, foundations, support and containment structures, paved surfaces, fencing, screens and associated facilities shall be demolished, ~~and~~ removed and disposed of in a safe~~ly~~ and ~~in an~~ environmentally acceptable manner by the Contractor ~~on~~ until (JC192) completion and taking over of the Works. All areas shall be backfilled, restored to a safe and suitable condition, cleaned and landscaped, all to the approval of the Engineer.

JC192: revised.

MD: "on" is correct

NK2: no comment and inform JICA of it.

(4) The Contractor must ensure that the temporary fuel storage and dispensing facility is operated and occupied at all time only by authorised personnel and that all unauthorised personnel are prohibited from entering such areas at all times. The Contractor shall be particularly careful and provide measures to prevent any unauthorised access, tampering, damage and theft at any time.

(5) All storage tanks shall be bunded either as jacketed tanks or by providing bunded enclosures, such that in the event of a catastrophic failure, the tank contents will be safely contained and shall not be allowed to run freely or enter the surface or ground water systems.

(6) The Contractor is reminded of the requirements of JSSS 2.8 [*Fire Prevention*] and will be required to provide a comprehensive and a high standard of fire protection in fuel storage areas.

Up to here, JICA comments and NK comments are inserted by NK on 2020/7/30.

CHAPTER 5: HOISTING AND RIGGING

5.1 GENERAL REQUIREMENTS

5.1.1 Scope

(1) This Chapter specifies the safety requirements for Hoisting and Rigging Works which shall include:

(a) Hoisting Operations;

(b) Hoisting Equipment; and

(c) Rigging Equipment.

And hereinafter collectively referred to as "Hoisting and Rigging".

(2) General requirements for Contractor's Equipment for Hoisting and Rigging (including cranes) are included in JSSS ~~Chapter~~ 4 [*Contractor's Equipment*].

Additional particular requirements are contained in this Chapter.

~~5.1.2 Definitions~~

~~Definitions of terms for the purpose of this Chapter are as follows:~~

(1) ~~"**Hoisting Equipment**" means Contractor's Equipment such as cranes, hoists, chain blocks, pulleys and the like which constitute the prime mover that, when used with Rigging Equipment, permits loads to be hoisted or lowered and positioned.~~

(2) ~~"**Rigging Equipment**" means the ropes, webbing, chains and slings together with all associated accessories such as hooks, hoisting points, shackles, etc. that, when used with Hoisting Equipment, permits loads to be hoisted or lowered, and positioned.~~

MD: All definitions transferred to Annex 1.1

NK2: confirmed.

(3) ~~"**Rated Capacity**" means the maximum hoisting load for each certain types of Hoisting Equipment as officially permitted recommended by the manufacturer. This will vary according to configuration of Hoisting Equipment and conditions of use such as length and angle of boom and other factors as permitted officially recommended by the manufacturer. (JC193)~~

MD: As discussed with NK, modified to cover all, SWL is deleted, revised definition transferred to Annex 1.1.

NK2: confirmed.

(4) ~~"**Safe Working Load**" means the maximum safe working load for each type, size and capacity of Hoisting Equipment and Rigging Equipment as officially recommended by the manufacturer. (JC193)~~

JC193: Rated capacity は mobile Clane と tower Clane に限定され、その他のクレーンには safe working load が適用されるはずです。

JC understand that Rated Capacity is applied to mobile Crane and tower Crane, and safe working load is done to other cranes.

NK: I will review this comment later.

MD: Both terms are similar or even the same, it appears that the word "safe" was dropped in some countries for legal reasons and Rated Capacity or Manufacturer's Rated Capacity used instead.

OSHA still uses both, however there is really no clear separation of meaning in OSHA which refers generally to:

Rated Capacity for cranes, derricks, jibs and booms of cranes, ladders, platforms, jacks, lift trucks and stackers, hoist assemblies (Rigging Equipment?) slings (ditto), electric blasting equipment,

and SWL for Rigging Equipment (the latter including overhead hoists) which appear to duplicate some

of the above

I suggest as an alternative in JSSS that the separate definition for SWL is not necessary, could be deleted and the definition for example could be as follows:

As this definition is used in other Chapters, it may also be preferable to transfer this definition to Annex 1.1.

In fact, I recommend that all definitions could be moved to Annex 1.1 so it is consistent with all other definitions and all in a single location.

This adjustment also and simply solves JICA query JC 261 and 266.

I have already adjusted Annex 1.1 for this but can change it back if you prefer.

NK2: no commnet.

(1) ~~"**Rigger**" means a competent person who is certified by the HSO as suitable for assignment to Hoisting and Rigging under this Chapter in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*].~~

MD: Transferred to Annex 1.1.

NK2: confirmed.

5.1.3 Compliance Standards

(1) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Chapter or relevant to the subject of this Chapter and which are not fully covered by JSSS, the Contractor shall comply with the ~~technical requirements of the~~ following standards: ~~in OSHA: PART 1926 – Safety and Health Regulations for Construction:~~

(a) OSHA ~~Subpart H – Materials Handling, Storage, Use, and Disposal; Section~~ 1926.251 [Rigging equipment for material handling];

(b) OSHA Subpart R [Steel Erection~~; hoisting and rigging~~];

(Note: Whilst this standard is related to Steel Erection, JSSS requires that this standard be applied ~~technical requirements to apply~~ to Hoisting Operations and associated rigging requirements in construction works generally)

(c) OSHA ~~Subpart CC [Cranes and Derricks in Construction; Section~~ 1926.1413 [Wire rope – inspection]; and

(d) OSHA ~~and Section~~ 1926.1414 [Wire rope - selection and installation criteria].

5.2 HOISTING OPERATIONS

5.2.1 Instruction for Contractor's Personnel

Further to the requirements of JSSS 1.7 [*Contractor's Safety Plans*], JSSS 1.9 [*Contractor's Method Statements*] and JSSS 1.15 [*Contractor's Safety Management Activities*], the Contractor shall include details of the following in the Method Statement and Safety Plan for Hoisting Operations and shall fully inform all Contractor's Personnel associated with such Hoisting Operations of these requirements before the commencement of any such operations, including:

(1) Scope, Area and Risk of the Hoisting Operation

(a) The scope of the required Hoisting Operation, the Rated Capacity ~~Safe Working Load~~, nature of Goods to be hoisted, location, required methods and safety arrangements;

(b) The Hoisting Operation ~~area limits~~ boundary; (JC194)

MD: "Boundary" is not a defined term and should not be capitalised.

NK2: no comment.

(c) Requirements on the ground conditions for installation, appropriate installation method taking account of all Hoisting Operation requirements, site and working

conditions, location of obstacles, etc.;

(d) The working environment of the nearby areas to which particular attention should be paid (e.g. storage of Dangerous Goods or Hazardous Substances, Hazardous Areas, Operational Areas, or Overhead Services);

(e) The preservation of safe access for Contractor's Equipment and persons to, within and around the Hoisting Operations working area; and

(f) The potential danger of Hoisting Operations to any persons that are on the Site, and who may be affected by such operations.

(2) Hoisting Operation and Rigging Requirements

~~(a)~~ The type(s) of Hoisting Equipment to be used and the Rated Capacity;~~/Safe Working Load; (JC194)~~

MD: addition of SWL is not necessary, the definition of Rated Capacity is used to cover all.

(b) The type(s) of Rigging Equipment to be used and the Rated Capacity ~~Safe Working Load~~;

(c) Hazards associated with the Hoisting Operation;

(d) Role and responsibility of the operator and each Rigger;

~~(e) Establishing targets for the day;~~ (JC194)

(f) Weight of Goods being hoisted;

(g) The shapes and characteristics of Goods being hoisted;

(h) The presence of any obstructions or Overhead Services and consequent restrictions on the movement and operation of Hoisting Equipment; ~~and~~

(i) Connecting and disconnecting techniques;

(j) The communication and signalling requirements (equipment to be used and standard signals); and

(k) The procedures in case of emergency. (JC194)

(3) Identification of Personnel

(a) The identity of operators, Riggers and any other workers associated with the Hoisting Operation;

(b) The name of the authorised operator for each unit of Hoisting Equipment;

(c) The identity of and location(s) for Spotters;

~~(d) The communication and signalling requirements (equipment to be used and standard signals); and~~

~~(e) The procedures in case of emergency.~~ (JC194)

5.2.2 Operators and Riggers Generally

(1) The Contractor shall place signs on each unit of Hoisting Equipment showing the name of each authorised operator and clearly prohibiting all unauthorised persons from using, handling, operating or sitting at the controls of that equipment unit.

(2) Further to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*], the Contractor shall ensure that operators and Riggers are appropriately qualified, skilled and experienced in operation of the Hoisting Equipment to which they are assigned and duly certified as such by the HSO.

(3) Operators and Riggers shall be fully aware of the following:

(a) Work procedures, possible risks and operation methods;

(b) The need to stop all work when any defect or abnormality is detected;

(c) Not to remove, interfere with or override any safety devices;

(d) The identity of and location(s) for Spotters and the communication and signalling requirements including equipment to be used and signals; and

(e) The procedures in case of emergency.

(4) In addition, operators shall:

(a) Safely and competently operate the Hoisting Equipment;

(b) Keep all safety devices including emergency alarm and stop devices activated;

(c) Keep their assigned unit clean and carry out regular inspections prescribed by the Contractor before start of operation; and

(d) ~~Ensure that~~ Inform the Contractor's maintenance personnel ~~are made aware~~ of any apparent defect or maintenance requirements ~~and that such personnel have performed any required repair or maintenance before the start of operation.~~ (JC194)

(5) The Contractor shall assign only Riggers for Hoisting Operations and shall prohibit other workers from any involvement.

(6) The names of all assigned Riggers shall be posted prominently in the working area of the Hoisting Operation.

JC194: deleted, modified and moved.

MD: Please refer to the comment against JSSS 4.1.6 which applies here equally:

"Not now the same meaning, the alternative wording is weaker and effectively means that equipment can be used even when defective. An operator should not be forced to use equipment which is defective, this clause now allows it".

NK2: Please see comment to JC176.

5.2.3 Safety Training

The Contractor shall provide health and safety training in accordance with JSSS 1.19 [*Safety Training Generally*]. taking account of the characteristics of the Hoisting Operations, Hoisting Equipment and Rigging Equipment.

5.2.4 Inspection of Hoisting Equipment and Rigging Equipment

(1) When the Hoisting Equipment is mobilised to the Site, the Contractor shall inspect the equipment complying with JSSS 4.2 [*Inspection, Maintenance and Repair*], to ensure that the equipment is free from defect and suitable for the planned Hoisting Operation.

(2) Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] and JSSS 4.2 [*Inspection, Maintenance and Repair*], the HSO shall ensure that all Hoisting Equipment and all Rigging Equipment is inspected and maintained when it is at the location of operation before the commencement of the first and of all subsequent Hoisting Operations.

Inspections shall include all items necessary to ensure the safe performance of the Hoisting Operations including the following examples and any further requirements due to the characteristics of the Hoisting Operation and the capability and condition of the Hoisting Equipment and Rigging Equipment including condition and performance of:

(a) Anti-two blocking devices (over-winding prevention devices) and over-load prevention devices;

(b) Other safety devices including brakes, clutches and controllers;

(c) Rails for trolley and runway;

(d) Hooks, sheaves, blocks, pulleys and the like;

(e) Cables, ropes and the like; and

(f) Rigging Equipment.

(3) Periodic inspection shall be made complying with JSSS 4.2 [*Inspection, Maintenance and Repair*] and include the following items:

(a) Condition of over-winding prevention devices, anti-two blocking devices (over-winding prevention devices), other safety devices, brakes, and clutches;

(b) Condition of wire ropes and hanging chains;

(c) Condition of the Hoisting Equipment;

(d) Condition of placement of winches; and

(e) Condition of electric wire, switchboard and controller.

(4) No Hoisting Equipment or Rigging Equipment shall be put into operation unless it has been inspected in accordance with the requirements of JSSS 4.2 [*Inspection, Maintenance and Repair*], and it is certified as safe to be used.

(5) The Contractor shall prepare standard checklists for the above regular and periodic inspections. The results of these inspections shall be recorded and kept in accordance with JSSS 1.32 [*Health and Safety Records*].

5.2.5 General Safety Measures for Hoisting Operations

The Contractor shall:

(1) Select Hoisting Equipment which has a Rated Capacity~~/Safe Working Load~~ (JC195)and function compatible with the work conditions and requirements, including loads, surface conditions, access, working area, radius and angle of boom, etc.

(2) Clearly display the Rated Capacity~~/Safe Working Load~~ of the Hoisting Equipment so that all operators and Riggers are fully aware at all times. (JC195)

JC195: added.
NK: Related with JC193, these additions will not be made.

MD: addition of SWL is not necessary, the definition of Rated Capacity is used to cover all.

NK2: no comment.

(3) Select Rigging Equipment with a Rated Capacity ~~Safe Working Load~~ suitable for the Hoisting Operation.

(4) Select Rigging Equipment compatible with the purpose, work conditions and requirements.

(5) Ensure that operators and Riggers confirm that the load on the Rigging Equipment is less than the Rated Capacity ~~Safe Working Load~~.

(6) Activate all safety devices of Hoisting Equipment throughout the entire operation time(s) of any Hoisting Operations.

(7) Prohibition of entry

(a) Designate all Hoisting Operations as “Dangerous Work”, enclose the entire working area which is subject to any risk by providing temporary fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry ~~– Dangerous Work~~*]; and

(b) The Contractor shall take measures to keep any unauthorised personnel away from any area where there is any risk of injury arising from the Hoisting Operation, due to fall of hoisted Goods, tangling, snagging, rebound of broken ropes or cables, broken sheaves, droppage and the like.

(8) Signalling

(a) Signalling between operators, Riggers and any associated workers regarding the Hoisting and Rigging Operations, shall only be carried out by Riggers, (hereinafter referred to as signallers);

(b) Signallers shall be located in a safe place outside the immediate area where the Rigging and Hoisting Operations are taking place, but in a location where they can clearly see suspended loads and can also see the operator and also be seen by such personnel;

(c) When it is not possible for signallers to give direct visible signals to the operator, hand-held radios or other communication tool as approved by HSO must be provided and used; and

(d) In addition, Spotters shall be placed and used only to keep any unauthorised personnel away from the working area.

(9) During Hoisting Operations:

(a) Check if the hoisting points, hooks and the like are positioned above the centre of gravity of the load to be hoisted;

(b) At commencement of all Hoisting Operations, stop the hoist at 30 cm from hoisting level, to check stability and ensure that all is in order before proceeding;

(c) Ensure that there are no persons and objects within the turning area when the Hoisting Equipment turns;

(d) After hoisting loads up to the safe height, adjust the boom gently;

(e) Always pay attention to any movement of the boom and the condition of suspended loads; and

(f) When unloading or detaching loads, stop once before landing and check the condition of the landing place and the load and then continue to lower gently.

(10) Ensure that operators shall never leave their seat or leave the controls while Hoisting Operations are in progress. (JC196)

(11) Defects with Hoisting Equipment during operation

(a) Ensure that if operators notice any defect or abnormality in the Hoisting Equipment during Hoisting Operations (such as abnormal noise, temperature, smell, etc.) the operator shall stop the Hoisting Operation immediately;

(b) Identify the cause of the defect or abnormality and make necessary repairs by using authorised and qualified specialist mechanics, electricians or representative technical engineers authorised by the Hoisting Equipment manufacturer; and (JC196)

(c) Ensure that the repaired Hoisting Equipment shall not be put in operation unless certified by the HSO.

(12) Condition of Ropes, Slings and Chains

Ensure that untested, uncertified, broken, damaged, deformed or defective ropes, chains or slings shall not be used.

(13) Adverse Weather

Take the following measures in addition to JSSS 2.7 [*Adverse Weather Requirements*]:

(a) Hoisting Equipment is left in a safe condition when not in use and particularly if adverse climatic conditions can be anticipated;

(b) All anchors, outriggers and supports are secure and adequate to fix and support the Hoisting Equipment in position during any adverse climatic conditions;

(c) Booms and jibs shall be secured to prevent any instability or collapse; and

(d) Before resuming any Hoisting Operation after any adverse weather, inspect Hoisting Equipment using the daily and periodic checklists specified in JSSS 5.2.4 [*Inspection of Hoisting Equipment and Rigging Equipment*].

(14) Use of Hoisting Equipment for Contractor's Personnel

As a general rule, Hoisting Equipment shall not be used for transporting or hoisting Contractor's Personnel.

In exceptional circumstances and if so approved by the HSO, use of Hoisting Equipment may be allowed when the following all measures are taken:

(a) Dedicated gondola for transporting or hoisting shall be provided;

(b) Prevention measures shall be taken to avoid turning and falling of gondola;

(c) The assumed load (i.e. 1.3 times of total weight of gondola and workers on board plus 500 kgf) shall not exceed the Rated Capacity of the Hoisting Equipment~~/Safe Working Load;~~ (JC196)

MD3: Will change as above but please note that if we are using the International Metric System of SI Units kg appears correct.

(d) Wires and ropes of Hoisting Equipment shall have a safety factor of at least 10 against the assumed load;

(e) Wire ropes of Hoisting Equipment shall have a safety factor of at least 10 against the assumed load;

(f) Lowering the gondola shall be by powered system which prevents any free drop; and

(g) Use of PFAS of any Contractor's Personnel in the gondola shall be ensured.

JV196: modified and added.
NK: Related with JC193, these additions of /Safe Working Load will not be made.

MD: Please refer to earlier comments, addition of SWL is not now necessary.

NK2: no comment.

5.3 HOISTING EQUIPMENT - CRANES

~~(Refer also to JSSS Chapter 4 [*Contractor's Equipment*])~~ (JC197)

5.3.1 Planning, Installation and Removal

Unless otherwise approved by the HSO, the Contractor shall employ an appropriately qualified, skilled and experienced crane specialist(s) that shall select the required type and capacity of crane, plan the Hoisting Operation including mobilising, assembly, erection, use, dismantling and removal of cranes. The Contractor's specialist shall:

(1) Investigate the location and position for installation, plan the appropriate installation method taking account of all Hoisting Operation requirements, site and working conditions, location of obstacles, etc.

(2) Investigate the working area and ensure the safety of the crane and any crane rails.

(3) Design and construct crane foundation, assemble and install the crane with proper structural design and in compliance with the manufacturer's written instructions.

(4) Conduct completion inspection, load test and stability test of the crane.

(5) Dismantle and remove and transport cranes in a planned and systematic manner in compliance with the manufacturer's written instructions.

5.3.2 Additional Requirements for Mobile cranes

(1) Position mobile cranes where there are no obstacles within the operation range.

(2) Where obstacles exist, plan the appropriate operation to avoid the obstacles and ensure that operators and signallers comply with this plan.

(3) Ensue that ground has sufficient and even bearing capacity to ~~avoid all risk of~~ prevent the crane from (JC198) subsiding and overturning. Where necessary or where there is any risk of damaging surface paving or underground services, provide temporary steel plates of suitable size, thickness and to support the crane and avoid any risk of overturning during operation.

JC198: no risk : Risk は消えることはないので、no risk とは言えない。to prevent ….といった表現に適宜修正しています。以下が関連条項。

Because risk does not disappear, it cannot be said to say no-risk. Therefore, it is altered to "to prevent" in the relevant Clauses such as follows:.

4.3.13
4.5.1(3)
6.7.7(5)
6.8.4(2)
6.8.4(3)
7.6.2 (1)
10.6.2(5)

(4) Provide steel plate load-spreader pads to support outriggers and prevent them from subsiding.

(5) Fully extend outriggers or extension type crawlers to the maximum position.

(6) When the outriggers or crawlers cannot be extended to the maximum position, adjust the Rated Capacity of the mobile cranes to suit lower capacity commensurate to the actual extension length of outriggers or crawlers.

(7) Ensure that the actual Rated Capacity of the mobile crane is clearly shown and also advised to operators and Riggers.

(8) Activate the over-load prevention device of mobile cranes and accurately input the operational conditions of booms and outriggers.

(9) Cease the Hoisting Operation from time to time and check upon the condition of the outriggers or crawlers, implement adequate remedial measures if there is any subsidence and prohibit continuation of the Hoisting Operation until the crane has been re-inspected and certified as safe by the HSO.

(10) After the Hoisting Operation:

(a) When the mobile crane is not driven, fix the hooks of crane at the safe position;

(b) When the mobile crane is driven, take the following measures before driving:

(i) Attach fixing pin on each part;

(ii) Apply the brake of the turning device and winch drum; and

(iii) Turn off all switches related with operation of cranes.

5.4 RIGGING EQUIPMENT

5.4.1 Hoisting and Rigging Equipment

(1) All items of Rigging Equipment shall be labelled to show all pertinent information, such as the name of the manufacturer, date of manufacture, Rated Capacity ~~Safe Working Load~~, date of the latest periodic inspection~~,~~ and its expiration date, etc. (JC199)

MD: Please refer to earlier comments, addition of SWL is not necessary.

NK2: no comment.

(2) The Contractor shall obtain Rigging Equipment from reputable manufacturers approved by the HSO and shall not make or repair his own Rigging Equipment at the Site.

(3) Rigging Equipment shall only be used:

(a) When certified as safe ~~to~~ for (JC199) use by the HSO in accordance with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*];

JC199: added and modified.

(b) Within the Rated Capacity ~~Safe Working Load~~; and

(c) In compliance with the manufacturer's written instructions.

(4) Rigging Equipment shall be removed from service, tagged as such and destroyed or removed from the Site, where required by the standards noted in JSSS 5.1.3 [*Compliance Standards*] including (but not limited to) the following conditions:

(a) Wire ropes

(i) Where one-tenth or more of the element wires are broken or cut in any one strand.

(ii) Where the reduction ratio of diameter due to use, exceeds 7% of the original nominal diameter at the date of manufacture.

(iii) With kink or deformation.

(iv) With excessive wear, corrosion or defect.

(b) Chains

(i) Where elongation due to use exceeds 5% of the original nominal length at the date of manufacture.

(ii) Where the diameter of links has reduced by more than 10 % since the date of manufacture.

(iii) With excessive wear, cracks, corrosion or defect.

(c) Hooks, shackles

(i) Signs of deformation.

(ii) With excessive wear, cracks, corrosion or defect.

(d) Synthetic fibre ropes or slings

(i) Broken or cut strands.

(ii) With excessive wear or defect.

5.4.2 Further Safety Requirements for Rigging

The Contractor shall fully comply with the requirements of the standards noted in JSSS 5.1.3 [*Compliance Standards*] including taking the following measures to prevent the risk of injury:

(1) Attach colour-coded self-adhesive vinyl tape and labels for slings visibly indicating the

month of inspection and whether suitable for use.

(2) Inspect all Rigging Equipment before start of works.

(3) Select and use suitable Rigging Equipment depending on the weight and shape of Goods.

(4) (JC200) Apply appropriate set up, provide fittings and accessories including clips and friction pads during Hoisting Works to ensure that the hoisted load (including bundled loads) are secure and will not move or slip, for example, cable-laid slings referred to BS EN 13414-3 Steel wire rope slings – Safety, Part 3: Grommets and cable-laid slings.

(5) Hoist loads at or above the centre of gravity.

(6) Attach guide ropes to the hoisted loads to assist with positioning.

(7) Securely store and protect Rigging Equipment to maintain in good condition and to prevent damage from rain, dust or contamination.

JC200: typo of numbering.

MD: This was already corrected in our earlier version .

NK2: no comment.

CHAPTER 6: TEMPORARY WORKS

6.1 GENERAL REQUIREMENTS OF TEMPORARY WORKS

This Section 6.1 applies to all Temporary Works included in JSSS ~~Chapter~~ 6.

6.1.1 Design and Provision of Temporary Works Generally

Unless otherwise specified in the Particular Safety Specification, the Contractor shall take all necessary measures for the study, design, management, provision, safe use and safe removal of all Temporary Works as necessary to safely and systematically execute the Permanent Works and in accordance with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*], JSSS 1.37 [*Design and Management of Temporary Works*] and the specified standards.

The Contractor shall comply with the requirements specified in the Contract for Temporary Works and:

(1) Provide Temporary Works which are fit for the purpose for which they are intended and fully in accordance with the JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

(2) Manage the design, use and removal of Temporary Works fully in accordance with JSSS 1.37 [*Design and Management of Temporary Works*].

(3) Maintain and repair all Temporary Works when in use to ensure the continued optimal and safe performance.

(4) Monitor all Temporary Works when in use and any affected Permanent Works, existing buildings, structures, ground or surfaces that may be affected by the Temporary Works through regular inspection and (where necessary and specified) with relevant instrumentation to ensure that the Temporary Works are performing safely, to the designed limits and intended purpose.

(5) ~~The Contractor shall e~~ Ensure that: (JC201)

(a) Modification of Temporary Works is not allowed unless it is authorised by the HSO;

(b) Unauthorised use of Temporary Works by any persons is not allowed;

(c) The HSO shall inspect all Temporary Works upon completion of erection and certify and label them as "Safe for Use" before any use is allowed;

(d) The HSO shall regularly inspect Temporary Works and certify and label them appropriately to ensure the continuous safe use or, in the event that faults are discovered, certify them as "Not Safe for Use" and prevent access to the Temporary Works until repaired and re-inspected;

(e) The HSO shall inspect Temporary Works upon the completion of the required Permanent Works and before Temporary Works are dismantled, demolished and removed accompanied by the Contractor's Temporary Works ~~specialist~~ (JC201) staff specified in JSSS 1.37 [*Design and Management of Temporary Works*] as appropriate, and certify that the Permanent Works are completed and the Temporary Works can be safely removed; and

(f) The HSO shall inspect after removal of the Temporary Works to ensure that removal has been completed properly and that no part of the Temporary Works remains, that any rectification of the Permanent Works is completed and all is left in safe order and condition.

JC201: deleted.

(6) Safety Plan for Temporary Works

The Contractor shall include details of all Temporary Works in the Safety Plan to be submitted in accordance with JSSS 1.7 [*Contractor's Safety Plans*].

6.1.2 Method Statements

Refer to JSSS 1.9 [*Contractor's Method Statements*].

6.1.3 Monitoring the Performance of Temporary Works

(1) The Contractor shall monitor the Temporary Works to demonstrate that they are performing safely, to the designed limits and for the intended purpose.

(2) For more details, refer to JSSS 2.1.7 [*Monitoring and Records*].

(3) Contract Compliance

Notwithstanding the requirements of JSSS 2.1.7 [*Monitoring and Records*], the Contractor is reminded of his overall responsibility under the Contract for the Temporary Works.

The Contractor shall satisfy himself that the monitoring criteria and requirements specified in JSSS 2.1.7 [*Monitoring and Records*], or in other respective Chapters of JSSS and/or in the Particular Safety Specification, are sufficient to comply with his obligations under the Contract and he shall take any additional measures necessary to ensure the adequacy, stability and safety of Temporary Works.

6.1.4 Compliance Standards

(1) By reference to JSSS 1.37 [*Design and Management of Temporary Works*] and unless otherwise specified in the Particular Safety Specification, the Contractor shall comply with Sections 1 and 2 of BS5975, Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework as management standard with respect to design, erection, use and dismantling of Temporary Works.

(2) In relation to Temporary Works, the Contractor shall, subject to JSSS 1.4.5 [*Specified Standards*] also comply with:

(a) Section 3: Falsework of BS5975, Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework; ~~and~~

(b) Such standards that are referred to in particular parts of JSSS. or,

(c) Other standards proposed by the Contractor to which the consent of the Engineer is provided. (JC202)

JC202: added.
NK: To MD, I think "and" cannot be deleted.

MD: The addition is not necessary as the Contractor is allowed to propose an equivalent alternative under JSSS 1.4.5 (2). If it to be added, then it does not follow the usual numbering convention.

NK2: no addition, and explain it to JICA.

6.2 EARTHWORK SUPPORT

6.2.1 General

(1) Refer to JSSS Annex 1.1: [*Definitions and Abbreviations*] for the definition of Earthwork Support.

(2) The Contractor shall maintain the structural integrity of the Works and Other Properties that could be affected by the Excavation Works and shall provide and maintain whatever Earthwork Support is necessary to comply with this requirement and ensure the safety of all persons that are in, under or adjacent to any excavation and to avoid any damage.

(3) Earthwork Support shall include for example ~~the provision of~~: (JC203)

(a) Timberwork including sheeting, planking, strutting and support systems;

(b) Steel sheet piling including shoring, strutting and support systems;

(c) Specialis~~t~~ed (JC203)support systems such as diaphragm walling, steel pipe piling, contiguous piling, soldier piling and lagging, and the like;

(d) Ground improvement, slope stabilisation, injection, ground freezing and the like; and

(e) Ground Anchors.

JC203: deleted and modified.

~~(4) The requirements for providing Earthwork Support may be waived by the HSO for the following excavations which have been inspected at the Site by him and judged by him to be safe, stable and free from any risk of movement or collapse:~~

(5) In the case of (a) and/or (b) hereof, the Earthwork Support may not be required, if in the opinion of the HSO, conditions of the site in excavation is sufficiently safe, stable and free from danger of movement or collapse, and he gives a permission of no-Earthwork Support. (JC204 & 205)

JC204: modified.
JC205: is "hereof" "hereunder" or "below"?

MD: Is this now subclause (4) or (3) continued with no number and new style formatting?

NK2: Original style is adopted. This is subclause (4).

The original format and wording was better.

If it is to have numbering, (4) then "hereof" should be changed to "following"

NK2: 'following" will be used.

(a) Excavation in rock; ~~and~~ (JC206)

(b) Excavation less than 1.5 m deep.

(6) For sloping or benched sides to excavations (in lieu of Earthwork Support), refer to JSSS 7.2.1 (3) ~~[*Excavation Work - Particular Safety Measures*]~~ (JC206)

JC206: deleted.

MD: Why deleted? It is a standard convention in JSSS to add a clause heading description.

NK2: 7.2.1 (3) specify "(3) Sloping sides and benching to sides of excavations shall comply with the technical requirements of OSHA Subpart P—Excavations §1926.652 [Requirements for protective systems, (b) Design of sloping and benching systems], dependant on the dimensional constraints of the Site and the nature of the soil, hydraulic and geological conditions."

The clause heading is not correct, so JICA deleted. May the reference be "7.2.1 [General] (3)?

6.2.2 Planning and Design

The Contractor shall design all Earthwork Support so that it is fit for the purpose for which it is intended and take account ~~all relevant site data provided by the Employer, all relevant Site data obtained by the Contractor in accordance with GC 4.10 and including:~~ of ground conditions and surrounding conditions including: (JC207)

(1) The effects of ground water including liquefaction, boiling or piping, heave, displacement and the like.

(2) The effect of vibration from site operations including piling or ground improvement.

(3) The effect of adjacent road or rail traffic.

(4) The requirements for safe access and working space necessary to execute the ~~Permanent~~ (JC207) Works.

JC207: deleted and modified.

6.2.3 ~~Inspection and~~ Monitoring (JC208)

JC208: deleted.

~~Refer to JSSS 2.1.7 [*Monitoring and Records*].~~

~~Further requirements for work in this Section are stated below.~~

~~(1) Visual Inspection and Monitoring~~

~~(c) The Contractor shall prepare a Visual Inspection Plan depending on the characteristics of the Site and the required Earthwork Support and carry out regular inspections based upon the content of the Plan; and~~

~~(d) Examples of inspection objects and inspection items are given in the following Table.~~

Refer to JSSS 2.1.7 [*Monitoring and Records*] for general requirement of monitoring and records.

The Contractor shall prepare a Monitoring Plan consisting of ~~consisted with~~ visual and instrument monitoring based on the Table 6.2.1[Example of Visual and Auditory Monitoring Items] and Table 6.2.2 [Example of Instrument Monitoring Items]

The contents of the tables are reference only, and the Contractor shall prepare a detailed Monitoring Plan and submit to the Engineer as a part of the Safety Plan or the Method Statement. (JC209)

JC209: deleted and added.

Table 6.2.1: ~~Visual Inspection Plan~~ Example of Visual and Auditory Monitoring Items (JC209)

JC209: revised.

MD: Is “auditory” (hearing) correct? Surely this is all visual?

NK2: Yes, I felt so at first. However, during monitoring, we should hear abnormal sound of moving of structure or water entering as mentioned abnormal sound of struts in 2 of table below.

	~~**Inspection Object**~~ **Locations** (JC210)	~~**Inspection**~~ **Monitoring Items** (JC210)
1	Earthwork Support: Faces, sheeting and piling	Meander/horizontal displacement and vertical displacement along top. Crack, deflection and swelling.

		Water leakage, mud inflow. Opening of joints or gaps in Earthwork Support.
2	Earthwork Support: Piles, walings and ~~strutting~~ (JC210) NK2: struts	Deflection, deformation and abnormal sound of struts and walings and other members. Settlement, floatation and twist of piles. Vertical or horizontal displacement~~,~~ of struts and walings and other members. (JC210) Opening of joints or breakage of cross members, or breakage and loosening of bolts.
3	Base of Excavation	Water spring and ground water flow. Sand boiling. Heaving of the base. Liquefaction.
4	Neighbouring or adjacent Ground, paving and roads	Cracks, collapse, subsidence of pavement or ground surfaces. Opening of joints in paving and kerbs.
5	Neighbouring or adjacent Buildings or Structures	Cracks, subsidence, deformation and tilting of structures.
6	Underground Utilities	Displacement or leakage of or damage to underground utilities.

JC210: revised.

MD: NK please note that "walings" was a plural in our draft of 29/06/2020. How has this changed?

Original "displacement of struts" appears to be correct?.

NK2: wailings and wailing are used in mix in last version. We will use struts and wailings all now.

~~(2) Instrument Monitoring~~

~~(e) The Contractor shall prepare an Instrument Monitoring Plan depending on the characteristics of the Site, the ground conditions and the Earthwork Support and carry out monitoring; and~~

~~(f) Examples of inspection objects and inspection items are given in the following Table.~~ (JC211)

JC211: deleted.

Table 6.2.2: Example of Instrument Monitoring ~~Plan~~ Items (JC212)

	~~Object~~ Locations(JC212)	~~Inspection~~ Monitoring Items (JC212)
1	Earthwork Support: Faces, sheeting and piling	Displacement, stress of Earthwork Support. Earth pressure and water pressure acting on Earthwork Support.
2	Earthwork Support:	Axial force of struts, other supports and ground anchors.

	Piles, walings and ~~strutting~~ struts (JC212)	
3	Base of Excavation	Displacement of base of excavation. Water pressure of ground water, rate of water inflow.
4	Neighbouring or adjacent ground, paving and roads	Displacement of neighbouring or adjacent ground. Ground water level.
5	Neighbouring or adjacent buildings or structures	Displacement; cracks, weakening, subsidence, deformation and tilting of structures.
6	Underground Utilities	Displacement or leakage of or damage to underground utilities.

JC212: modified.

MD: NK please note that "walings" was a plural in our draft of 29/06/2020. How has this changed?

NK2: we will use "struts" and walings".

6.2.4 General Safety and Construction Requirements

(1) Materials and equipment to be used for Earthwork Support shall be appropriate for the width and depth of the excavation and free from damage or defects that might impair their proper function.

(2) Workers shall not be allowed to enter any excavation until Earthwork Support is installed prior to the work.

(3) Earthwork Support shall proceed progressively so that no excavated faces are left without support or at risk of weakening or collapse at any time.

(4) Excavation to a level greater than 60cm below the planned bottom level of support when the support itself is not yet installed shall not be allowed.

(5) If temporary removal of individual members of Earthwork Support is necessary, safety measures shall be taken to ensure the safety of workers, such as installing additional temporary struts to support the additional loads imposed on parts of the system.

(6) When removing Earthwork Support, the Contractor shall prohibit anyone other than the workers engaged in the removal work to enter the working area and vicinity.

(7) Backfilling and compaction of any excavation shall be performed in parallel with the removal of Earthwork Support.

6.2.5 Safety Measures for Shoring

(1) "Shoring" shall include waling, shoring, strutting and like support.

(2) Shoring shall be securely installed and fixed to Earthwork Support to prevent detachment and any movement or failure.

(3) All members acting in compression (excluding diagonal struts) shall be butt-jointed, and timber shoring shall be jointed with two or more doubling plates.

(4) Connecting parts of shoring or diagonal shoring or intersections, shall be reinforced with backing plates and bolts (timber) and welding with reinforcing plates (steel).

(5) For earth retaining work with intermediate piles, fix struts on intermediate piles rigidly.

(6) When shoring is fixed to or relies on an existing structure or building, the Contractor shall ascertain that the structure or building is able to withstand the applied load.

(7) Gaps between earth retaining wall (steel sheet piles, H-shape steel piles and the like) and waling shall be filled with mortar, concrete, steel plates and suitable wedges.

(8) Connections between struts and waling~~s~~ (JC213) shall be reinforced with ready-made stiffeners, stiffener plates, concrete/mortar filling, stiffener jacks, etc.

JC213: deleted.

MD: Why? Elsewhere it is added?

NK2: we will use “struts” and walings”.

6.2.6 Safety Measures for Ground Anchor Work

(1) Anyone other than designated personnel shall not operate the boring machine.

(2) No one (except those essential to the post-tensioning operations) shall be permitted to be behind the tensioning jack during tensioning to prevent any injury through breaking of the anchor tendon during tensioning.

(3) The Contractor shall check any damage in the grout hoses and joints before commencing any grout injection.

6.2.7 Adjacent Goods, Excavated Spoil and the like

(1) When placing any Goods, excavated spoil and the like on the ground surface at the top and adjacent to any excavation, the Contractor shall take measures to prevent it from falling.

(2) The Contractor shall not place any Goods, excavated spoil, backfill material and the like where the weight exceeds the load considered in the design of the Earthwork Support.

6.3 COFFERDAMS

6.3.1 General

(1) Refer to JSSS Annex 1.1: [*Definitions and Abbreviations*] for the definition of Cofferdam.

(2) Cofferdams are generally constructed as earth dykes, caissons, steel sheet piling, double steel sheet piles, steel pipe piles and the like.

6.3.2 Planning and Design

The Contractor shall design Cofferdams so that they are fit for the purpose for which they are intended and ~~take account all relevant site data provided by the Employer, all relevant Site data obtained by the Contractor in accordance with GC 4.10 and including:~~ take account of ground conditions and surrounding conditions including:

(1) The effect of vibration from site operations including piling or ground improvement.

~~(2) The requirements for safe a Access and working space necessary to execute the Permanent Works.~~

~~(3) The effect of any vibration from site operations (e.g. driven piling).~~

(4) Access and working space necessary to execute the Works.

(5) River discharge, water levels, tide levels, wave height, free board, seismic load, external force and any other relevant river, lake or marine conditions.

(6) ~~Marine~~ Waterborne traffic.

(7) Avoidance of any damage by piling operations and the protection of the structural integrity of existing river or canals, banks, dykes and the like.

(8) Reduction of river cross sectional area, increased flow rates and protection of the structural integrity of existing river or canal banks, dykes and the like.

(9) Effects of tides, wave action, flooding and the like, the consequent need for additional shoring and avoidance of loosening of shoring and joints.

(10) Provision of at least two safe ~~escape~~ evacuation routes from the working areas by means of ladders, stairs, etc. to evacuate in the case of any danger of collapse of or inundation in the Cofferdam.

(11) Provision of life-saving equipment including buoyancy jackets, lifebuoy, ropes and (where necessary) standby boats.

(12) Measures for avoiding water pollution from construction and dismantling of Cofferdams.

(13) Measures for safe dismantling and removal. (JC214)

JC214: deleted and modified.

6.3.3 ~~Inspection and~~ Monitoring

~~Refer to JSSS 2.1.7 [*Monitoring and Records*].~~

~~Further requirements for work in this Section are stated below.~~

~~(1) Visual Inspection and Monitoring~~

~~(g) The Contractor shall prepare a Visual Inspection Plan depending on the characteristics of the Cofferdam and carry out regular inspections based upon the content of the Plan; and~~

~~(h) Examples of Inspection Objects and Inspection Types are given in the following Table.~~

Refer to JSSS 2.1.7 [*Monitoring and Records*] for general requirement of monitoring and records.

The Contractor shall prepare a Monitoring Plan consisted with visual and instrument monitoring based on the Table 6.2.1[Example of Visual and Auditory Monitoring Items] and Table 6.2.2 [Example of Instrument Monitoring Items]

MD: Font size corrected.

NK2: no comment.

The contents of the tables are reference only, and the Contractor shall prepare a detailed Monitoring Plan and submit to the Engineer as a part of the Safety Plan or the Method Statement. (JC215)

JC215: JC214: deleted and modified.

~~**Table 6.3.1: Visual Inspection Items**~~(JC217)

Table 6.3.1: Example of Visual and Auditory Monitoring Item

JC217: modified.

MD: is "auditory" correct?

NK2: Yes, please see my reply to JC209.

	~~**Inspection Object**~~ **Locations**(JC217)	~~**Inspection Type**~~ **Monitoring Items** (JC217)
1	Cofferdam Generally	Water seepage. Ability and capacity of pumping arrangements to maintain safe working conditions. Meander/horizontal displacement and vertical displacement along top. Crack, deflection and swelling. Opening of joints.
2	Piles, shoring and strutting	Deflection, deformation and abnormal sound of piles, struts and waling and other members. Opening of joints or breakage of piles, cross members, or breakage and loosening of bolts.
3	Base of Excavation	Water spring and ground water flow. Sand boiling. Heaving of the base.
4	Neighbouring Properties or Structures on or outside the Site	Cracks, subsidence, deformation and tilting of structures.

~~(2) Instrument Monitoring~~

~~(i) The Contractor shall prepare an Instrument Monitoring Plan depending on the~~

~~characteristics of the Site, the ground conditions and the required Cofferdams and carry out monitoring; and.~~

(j) ~~Examples of inspection objects and inspection types are given in the following Table.~~ (JC218)

JC218: deleted.

Table 6.3.2: Example of Instrument Monitoring Items (JC219)

JC219: modified.

	~~Inspection Object~~ **Locations** (JC219)	~~Inspection Type~~ **Monitoring Items** (JC219)
1	Cofferdam Generally	Displacement, stress of Earthwork Support. Earth pressure and water pressure acting on Earthwork Support.
2	Shoring and strutting	Axial force of strut, other supports and ground anchors.
3	Base of Excavation	Displacement of base of excavation. Water pressure of spring of water, water inflow.
4	Neighbouring Properties or Structures on or outside the Site	Displacement: cracks, weakening, subsidence, deformation and tilting of structures.
5	Underground Utilities	Displacement, damage or leakage ~~to~~ of underground utilities. (JC219)

6.3.4 General Safety and Construction Requirements

(1) ~~The Contractor shall construct the Cofferdams with shoring by the same method stipulated in JSSS 6.2.5 [*Safety Measures for Shoring*]~~. For shoring works, refer JSSS 6.2.5[Safety Measures for Shoring]. (JC219)

MD: Font size corrected.

NK2: no comment.

(2) The Contractor shall provide training to all Contractor's Personnel who are to work on the construction, maintenance and removal of the Cofferdam or within the Cofferdam, so that they are aware of all risks and countermeasures including water leakage, adverse weather, severe waves or adverse river or marine conditions, so that they can work safely and when necessary, evacuate the working areas efficiently and safely.

(3) The Contractor shall display visible and clear warning notices of all hazards and advisory notices giving directions and information, including emergency contacts, safe escape routes, directions to and locations of life-saving equipment, assembly areas, ~~escape~~ evacuation boats and the like.

(4) The Contractor shall implement measures to prevent collisions with ~~marine or river~~ waterborne traffic, including warning signs and lights during the night or in heavy rain mist or fog.

(5) The Contractor shall establish a system to confirm the safety of the Cofferdams, appoint a person-in-charge who shall be present at all times and shall be responsible for issuing

an evacuation order if and when necessary.

(6) The Contractor shall evacuate Contractor's Personnel whenever there is any danger due to water leakage through Cofferdams or from the ground within the working area.

(7) Whenever any defect is identified in the Cofferdam, the Contractor shall implement repair and improvement measures to ensure the safety of Contractor's Personnel and prevent any personnel from re-entering the Cofferdam until it has been inspected by the HSO and certified by him to be "safe for use". (JC219)

JC219: deleted and modified.

MD: If not capitalised then quotation marks are not required.

NK2: we inform this to JICA.

6.3.5 Excessive and Sudden Rise in Water Level.

(1) The Contractor shall analyse any risk due to sudden rise of water level and excessive water level above the design basis for the highest water level and prepare for this as applicable in the Safety Plan.

(2) This shall include procedures for monitoring water levels as described below.

(a) Monitoring water levels with instruments and recording equipment at the Site and obtaining forecasting information of water levels;

(b) Communications among persons in charge of monitoring of water levels, persons responsible for the works in the Cofferdams, the HSO and workers in the Cofferdam;

(c) Instructions to Contractor's Personnel for evacuation;

(d) Stop work in accordance with JSSS 1.13 [*HSO – Scope of Duties and Authority*]; and

(e) Resume work when water level has subsided and after inspection and certification by the HSO that it is safe to do so.

6.3.6 Monitoring Water Level and Other Conditions

In addition to the requirements of JSSS 2.1.7 [*Monitoring and Records*], the Contractor shall monitor and keep records of all climatic, river and/or marine conditions in the direct vicinity of any Cofferdam including for example, the water level at various times throughout the day, tidal data, speed and direction of waterflow, wave height, wind speed and direction.

The Contractor shall provide all instruments and facilities to obtain the data and submit reports to the Engineer on a daily basis and compile on weekly basis.

6.4 WALKWAYS~~, LADDERS AND STEPLADDERS~~ (JC220)

JC220: deleted.
MD: Why? each is different and ladders are generally not to be used as walkways
I have changed the cross-reference to this Section elsewhere.
JC2: The 2.5.7 stipulate " (1) Walkways For the purposes of interpretation: "walkways" mean route or passage for safe movement of pedestrians including walkways, bridge type walkways, covered walkways, ramps, ladders and stepladders. As the walkways covers ladders and stepladders, JICA deleted them from the title.
6.4.1 (1) mentions specify walkways, so this Section is mainly for walkways. However, I will propose again the original because this Section covers ladders and stepladders.

6.4.1 General

(1) This Section includes safety measures relating to the safe movement of persons to and around the Site with respect to walkways.

(2) Refer to JSSS 2.5.7 for interpretation of the word "walkways".

~~(3) In this Section, "walkways" shall mean route or passage for safe movement of pedestrians including walkway, bridge type walkway, covered walkways, ramp, ladders and stepladders.~~

(4) ~~Portable~~ ladders and stepladders other than fixed ladders shall not be used for walkways in principle. ~~Portable~~ Ladders and stepladders may be used ~~provided that~~ , only if (JC221) the HSO considers the risk of their use to be ~~is~~ low.

JC221: deleted and added.

(5) For temporary steps and staircase structures the requirements of JSSS 6.5 [*Scaffolding*] shall apply.

(6) For Fall prevention from walkways, ladders and stepladders the requirements of JSSS 2.5 [*Fall Prevention*] shall apply.

(7) Details of the following shall be included in the Safety Plan required by JSSS 1.7 [*Contractor's Safety Plans*] and JSSS 6.1.1 (6) [*Safety Plan for Temporary Works*]:

(a) Locations and available periods of walkways to be provided;

(b) Drawings of walkway structures, indicating structure type, materials and main dimensions for bridge type walkways where the height and length is 10m or more;

(c) Types of temporary walls, barriers or other separation between walkways and working areas, roads or footpaths on or around the Site; and

(d) Locations of emergency exits and evacuation routes.

(8) The Contractor shall:

(e) Provide designated walkways to, in and around the various workplaces at the Site to ensure the safe and secure movement of all persons at all times;

(f) Provide and maintain clear signage so that all users are aware of the locations and routes;

(g) Provide and maintain adequate lighting;

(h) Ensure that walkways have sufficient dimensions and load-bearing capability for the intended purpose;

(i) Ensure that there are no obstacles in walkways and that surfaces are level and safe, maintain all in a clean and orderly condition to avoid any falls, slips and injury;

(j) Ensure that walkways do not exceed a gradient of 30 degrees. Steeper gradients shall be provided with steps or staircases or ladders where appropriate; and

(k) Ensure that ramps, steps and staircases have slip resistant surfaces and that they are provided with handrails and toe boards in accordance with JSSS 2.5.5 [*Handrails*] and JSSS 2.5.6 [*Toeboards*].

6.4.2 Emergency Exits and Safe ~~Escape~~ Evacuation Routes(JC221)

The Contractor shall provide clear and illuminated signage so that all persons are made aware of the locations of emergency exits and safe ~~escape~~ evacuation routes and maintain all such locations and routes in a clean, safe and readily available condition. (JC221)

6.4.3 Vertical Access

The Contractor shall provide steps, stairs and ramps as means of providing safe access or egress from excavations or different working levels.

Steps, stairs and ramps shall be constructed as follows:

(1) With Scaffolding in accordance with JSSS 6.5 [*Scaffolding]*, provided with handrails and non-slip treads. (JC221)

(2) With purpose made timber or metal ramps comprising plywood boarding and structural timber framing.

JC221: modified.

6.4.4 ~~Portable~~ Ladders and Stepladders (JC222)

JC222: 6.4.4 に出てくる ladders は全て potable ladders にした方がよいのではないでしょうか？ご検討下さい。

Please check if all “ladders” shall be replaced with “poertable ladders”

NK: I think they are better to be replaced. To MD, how do you think?

MD: Whilst we do not use ANSI or OSHA as a reference standard for ladders, please note that:

1) ANSI standard A14. 2-1990 defines a “**portable ladder”** as "a “**ladder”** that can readily be moved or carried, usually consisting of side rails joined at intervals by step, rungs, cleats, or rear braces." If they are fixed “**ladders”** they are required to have fall protection at a length of 24 feet.

2) OSHA 29 CFR 1910.21(e)(2) defines “fixed ladders as "a ladder permanently attached to a structure, building, or equipment." Portable ladders are not defined in the standard, but by inference, a portable ladder would be any ladder not fitting the definition of a fixed ladder. The ANSI standard A14.2-1990 defines a portable ladder as "a ladder that can readily be moved or carried, usually consisting of side rails joined at intervals by step, rungs, cleats, or rear braces."

There is no reference standard in JSSS for ladders and the use of “portable” is therefore not prescribed.

Maybe better to include for example the following clause here and merely refer in all other places merely to “ladders”:

> For the purposes of interpretation and unless otherwise stated in JSSS the word “ladders” shall be deemed to mean portable ladders, namely those that can be easily moved or carried even if temporarily restrained and that are not an integral part of a building, structure or equipment.
>
> Fixed ladders meaning those that are permanently attached to a building, structure, or equipment shall be the subject of separate design by the Contractor if for use in Temporary Works or by the Employer if for use in Permanent Works.
>
> Fixed ladders whether for use in Temporary Works or Permanent Works shall be provided with fall protection for lengths of 7.32 metres and above in accordance with ANSI standard A14. 2-1990.

NK2: agreed to the above addition and explain it to JICA.

The Contractor shall comply with the following requirements regarding the use of portable ladders and stepladders:

(1) ~~Portable~~ Ladders shall:

(a) Be of sound structure, clean and not contaminated by any slippery material;

(b) Be without visible signs of defect, damage, corrosion, and shall otherwise in safe condition;

(c) Be at least 30 cm wide;

(d) Have steps with an interval of 25cm to 35cm and evenly spaced; and

(e) Have slip-proof steps or have other measures to prevent slipping.

(2) Stepladders shall

(a) Be of sound structure, clean and not contaminated by any slippery material;

(b) Be without visible signs of defect, damage, corrosion, and shall otherwise in safe condition;

(c) Have an angle between the front rail and the floor not exceeding 75 degrees and for folding stepladders they shall be equipped with a lock (such as a spreader with lock) to secure the angle made by the front rail and the floor;

(d) Steps shall be non-slip and of sufficient size to ensure safe operation; and.

(e) Rails shall have non-slip feet or shoes.

(3) Use of ladders and stepladders

The Contractor shall ensure with respect to use of both ladders and stepladders that:

(a) Users shall read and follow all labels/markings on ladders or stepladders, be aware of and never exceed the maximum load rating of the ladder or stepladder and of the weight it is supporting, including the weight of any tools or equipment;

(b) Users shall avoid electrical hazards, always look for overhead power lines before handling ladders or stepladders. Avoid using metal ladders or stepladders near power lines or exposed energised electrical equipment;

(c) Ladders or stepladders shall be inspected prior to use. If a ladder or stepladder is damaged, it shall be removed from service and suitably tagged until repaired or discarded; and

(d) Ladders or stepladders shall only be placed on a stable, firm and sufficiently strong base giving level and safe support and so that the rungs or steps remain horizontal, as well as any loading placed on it;

(4) Additional Requirements for Use of ladders

The Contractor shall ensure with respect to use of ladders:

(a) Ladders shall maintain an angle between foot and floor of L (horizontal length): H (height) = 1: 4 (75.5 degrees);

(b) Ladders shall have the top projecting at least 1 m over the landing floor;

(c) Ladders shall not be placed on boxes, or other unstable bases to obtain additional height and connected ladders to give greater height or reach shall not be allowed;

(d) Suspended ladders shall be anchored in a secure manner so that they cannot be displaced or swing;

(e) Ladders shall be secured before any use and prevented from slipping during use by:

(i) Securing the side rails at or near the top and the bottom;

(ii) Providing an effective anti-slip shoe or foot; and

(iii) Having another worker support the lower part of the ladder.

(f) No extendable ladder shall be used where its sections cannot be locked and which could therefore move while in use; and

(g) Where a ladder or a series of ladders rise for a vertical height of 9 m or more above the base level, safe landing areas or rest platforms shall be provided at suitable intervals wherever possible.

(5) Additional Requirements for Use of Stepladders

The Contractor shall ensure with respect to use of stepladders:

(a) Stepladders shall not be used for work at heights of 2m or more. The Contractor shall adopt other measures for work in excess of 2m such as or providing Scaffolding in accordance with JSSS 6.5 [*Scaffolding*];

(b) Step ladders shall not be used as a single ladder or in a partially closed position;

(c) Treads of stepladders shall have the correct sized area and slip resistant finish for safe working;

(d) Restraint Clasps shall be securely locked before any use;

(e) Stepladders shall not be placed on unstable or uneven surfaces;

(f) Stepladders shall not be positioned in front of doors;

(g) The top rung of a ladder or step of a step ladder shall not be used as a rung/step unless designed for that purpose;

(h) For use of Stepladders as a support for trestle Scaffolds refer to JSSS 6.5 [*Scaffolding*]; and

(i) The user can maintain a safe handhold when carrying a load unless this is otherwise justified by the height of the task, ~~whether the handhold is available before and after the task, when it is light work, when it avoids side loading and overreaching, when the step ladder can be tied and in any event after a risk assessment has demonstrated that the use of a stepladder is safe and justified.~~ nature of work and the like. (JC222)

JC222: そもそも脚立はなるべく使わないということもあり、あまりこういうことを詳しく書かなくてもよいと判断しました。また、英語が華麗すぎてわからないので簡単にしました。

In the first place, I don't use a

Stepladders are basically not to be used as much as possible, therefore we judged not necessary to specify in detail and made simple stipulation

6.4.5 Inspection

In accordance with JSSS 1.13 [*HSO - Scope of Duties and Authority*] the HSO shall regularly inspect all walkways, ladders and step ladders, ensure that same are safe and fit for the intended purpose and visibly certify each as “Safe for Use” or otherwise.

6.5 SCAFFOLDING

6.5.1 General

(1) This Section contains requirements for various types of Scaffolding including supported scaffolds (for example tube and coupler scaffolds and fabricated frame scaffolds), mobile scaffolds, suspended scaffolds, trestle scaffolds and mobile elevating work platforms.

(2) Not all types of Scaffolding are separately described in this Section and the requirements of this Section are therefore of general application. Requirements for any one type of Scaffolding shall also apply generally to all types and configurations unless otherwise stated or apparent from the wording and context.

(3) All Scaffolding shall be designed, erected, tested, inspected, used, dismantled and removed by Contractor's Personnel that have been trained and certified for such operations in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*].

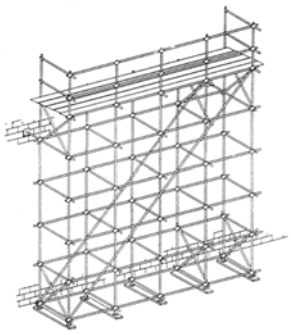
(4) All Scaffolding, shall be carried out in compliance with the manufacturer's written instructions or the design of the Contractor. (JC223)

JC223: added.

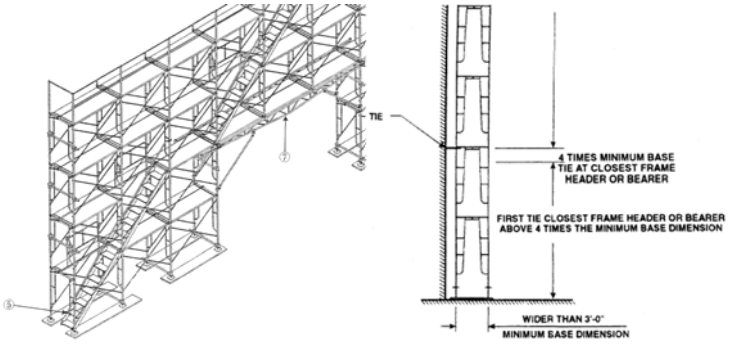
MD: The defeats the object, it now means literally that it does not have to be carried out compliance with the manufacturer's written instructions. Design is already covered in the preceding clause, we recommend that no change be made.

NK2: the addition is made because some Scaffolding such as tube and coupler scaffolds shown below are designed by the Contractor at the Site how to use and elect pipes and couplers at the Site.

The fabricated frame scaffolds can be simply erected following the instructions, so no need design.
The manufacturer's written instructions may be how to use the couplers.
The preceding clause specify regarding personnel for scaffolding.
There are misunderstanding by JICA that design of the Contractor is to design the layout, height, width, materials, etc. of Scaffolding.
I guess (4) all scaffolding means the specifications of materials, parts, etc. and limitation of height, how to use them given by the manufacturer.
I think it is necessary to add concrete requests regarding what all Scaffolding shall be carried out in accordance with the instructions.



(1) tube and coupler scaffolds



(2)Fabricated Frame Scaffolds

(5) The design, management, provision, safe use and safe removal of Scaffolding shall comply with the requirements of JSSS 6.1.1 [*Design and Provision of Temporary Works Generally*].

(6) Unless specified elsewhere in JSSS or in any of the compliance standards, all Scaffolding and Scaffold components shall be capable of supporting, without failure, its own weight and at least 4 times the maximum intended load applied or transmitted to it.

(7) Scaffolds and Scaffold components shall not be loaded in excess of their maximum intended loads or rated capacities, whichever is less.

(8) Scaffolding shall not be used for any purpose other than the intended original purpose

and for example shall never be used for hoisting loads. The Contractor shall provide other specific types of Contractor's Equipment (such as material hoists) for that purpose.

(9) Scaffolding shall be removed immediately upon completion of the work for which it is provided.

6.5.2 Compliance Standards

(1) By reference to JSSS 1.4 [*JSSS – Compliance with JSSS and Other Regulations*], any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall comply with ~~the technical requirements of~~ any one of the following standards:

(a) OSHA ~~PART~~ 1926 ~~Safety and Health Regulations for Construction,~~ Subpart L [Scaffolds];

(b) ANSI/ASSP A10.8 – 2019 Scaffolding Safety Requirements equipment - Part 1: Scaffolds [Performance requirements and general design,~~ USA~~]; and

(c) BS EN12811-1:2003 Temporary works equipment - Part 1: Scaffolds [Performance requirements and general design] ~~UK~~.

MD: refer to notes in JSSS 2.1.4.

NK2: no comment.

6.5.3 Notices to be Displayed on Scaffolds

(1) Following inspections by HSO, suitable signage shall be applied to Scaffolds clearly indicating for example:

(a) "Scaffold Complete and Safe For Use"

(b) "Scaffold Not Complete - Do Not Use"

(c) "Scaffold Not Safe For Use"

(2) When any Scaffold is to be used for loading of Goods, the Contractor shall display a notice indicating the maximum load capacity of each Scaffold.

(3) Scaffolds shall also be tagged with the names of the erector and the person responsible for inspection and maintenance of the Scaffold.

(4) All notices shall be clearly visible and in easy-to-see locations.

6.5.4 Scaffolding Assembly, Erection, Alteration and Dismantling Generally

The Contractor shall take the following measures when assembling or erecting, altering or dismantling all types of Scaffolding:

(1) Scaffolding shall be assembled or erected, altered and dismantled only by competent personnel and the work should always be carried out under the direction of a competent Superintendent.

(2) Working areas where Scaffolding is being assembled or erected, altered and dismantled shall be ~~designated as Dangerous Areas, and the Contractor shall~~ enclosed ~~the working area~~ with temporary fences or barriers~~.~~. The Contractor shall (JC223) prevent entry of any non - authorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry - ~~Dangerous Work~~*].

JC223:

MD: No comment why change?

The revised wording is inconsistent with other Temporary Works and not now correct.

NK2: No reason is given by JICA. I guess there are so many Scaffolding in the Site, JICA feel not necessary to designate as Dangerous Areas.

(3) During erection of Scaffolding 2m high and above, boarded areas shall be provided for safe temporary storage of Scaffolding tubes, couplings, fittings or components and other materials and equipment.

(4) All workers engaged in the assembly or erection, alteration and dismantling of any Scaffolding shall be provide with PFAS and ensure that such workers use this.

(5) Scaffold boards shall each be securely fixed at a sufficient number of points to provide constant support with no movement or dislocation and no gaps that may create a dropping hazard.

(6) When moving Scaffold boards, ensure that they are securely supported in at least three (3) locations, the length of any projection from supports shall be at least 10cm and not exceeding one-eighteenth of the length of the Scaffold boards.

(7) When stacking the timber sole plate or runners ensure that they are stacked in the longitudinal direction, over supports and with 20 cm overlaps.

6.5.5 Inspection and Maintenance of Scaffolding

Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the Contractor shall comply with the following:

(1) Every Scaffold from which a person could fall 2m or more shall be thoroughly examined by the HSO (or his delegated assistant):

(a) Before it is brought into use;

(b) After any substantial alteration or extension;

(c) At least once in every 7 days; and

(d) Whenever it has been exposed to adverse climatic conditions, earthquake or other factors which may have affected its safety.

(2) A written record of the examination and regular inspections with details of any repair measures shall be prepared and kept by the HSO.

(3) The examinations and regular inspections shall include:

(a) Check that the Scaffold is provided and used in accordance with the Method Statement, Safety Plan and its design;

(b) Condition of Working Platforms (JC224) and of any damage to fixings;

(c) Condition and any loosening at the fastening, connecting and mounting, portions of standards, ledgers, brackets, and the like;

(d) Condition and any damage and corrosion of couplings, fittings, clamps and accessories;

(e) Condition and any damage and corrosion of fall prevention facilities and that they are intact and secure;

(f) Condition of mountings and presence of toe boards;

(g) Condition of bases, screw jacks, castors, brakes, sole plates and the like and ensure there is no movement or settlement;

(h) Condition of mountings and presence of diagonal bracings, stays, anchors, ties and other bracing, support or reinforcement materials; and

(i) Condition of mountings and presence of posts, standards, ledgers and transoms.

(4) The Contractor shall carry out all necessary remedial and repair work necessary to rectify any deterioration, defect or damage and shall, if necessary, (JC224) stop the use of the

Scaffolding until such work has been properly completed, re-inspected and re-certified as "Safe for Use" by the HSO.

JC224: modified.

6.5.6 Scaffold Platforms

Scaffold platforms shall comply with the following:

(1) Each platform on all working levels of Scaffolding shall be fully planked or decked between the front uprights and the handrail supports as follows:

(a) Platforms shall be of adequate size and strength and with true dimension and no twist or bending, no splits, holes or damage;

(b) Each platform unit shall be installed so that the space between adjacent units and the space between the platform and the uprights is no more than 2.5 cm wide, except where the Contractor can demonstrate that a wider space is necessary;

(c) Where the Contractor makes the demonstration provided for in paragraph (b) above, the platform shall be planked or decked as fully as possible and the remaining open space between the platform and the uprights shall not exceed 24 cm.; and

(d) The requirement to provide full planking or decking does not apply to platforms used solely as walkways or solely by the workers performing Scaffold erection or dismantling. In these situations, only the planking that the Contractor establishes is necessary to provide safe working conditions is required.

(2) Except as may be provided separately for individual types of Scaffold, Scaffold platforms and walkways shall be at least 45 cm wide.

Where ~~scaffolds must be used in areas that the Contractor can demonstrate are so narrow that platforms and walkways cannot be at least 45 cm wide, such platforms and walkways shall be as wide as feasible,~~ it is not practicable to provide 45 cm width, the Contractor shall secure a width as wide as feasible for the work, (JC225) and the workers on those platforms and walkways shall be protected from fall hazards by the use of handrails and/or personal fall arrest systems.

JC225: modified.

(3) Except as provided separately for individual types of Scaffold, the front edge of all platforms shall not be more than 36 cm from the face of the work, unless handrails are erected along the front edge and/or personal fall arrest systems are used to protect the workers from falling.

(4) Further requirements to those specified above, shall comply with ~~the technical requirements of~~ OSHA ~~Subpart L Scaffolds,~~ 1926.451 [General requirements, (b) Scaffold platform construction].

6.5.7 Supported Scaffolds

(1) General

(a) Scaffolds with a height to base width (including outrigger supports, if used) ratio of more than four to one (4:1) shall be restrained from tipping by guying, tying, bracing, or equivalent means;

(b) Poles, legs, posts, frames, and uprights shall bear on base plates and mud sills or other adequate firm foundation;

(c) Footings shall be level, sound, rigid, and capable of supporting the loaded Scaffolding without settling or displacement;

(d) Poles, legs, posts, frames, and uprights shall be plumb and braced to prevent

swaying and displacement;

(e) When moving platforms to the next level, the existing platform shall be left undisturbed until the new bearers or end frames have been set in place and braced prior to receiving the new platforms; and

(f) Further requirements to those specified above, shall comply with ~~the technical requirements of~~ OSHA ~~Subpart L Scaffolds,~~ 1926.451 [General requirements, (c) Criteria for supported scaffolds].

(2) Tube and Coupler Scaffolds

(a) Transverse bracing forming an "X" across the width of the Scaffold shall be installed at the Scaffold ends and at least at every third set of posts horizontally (measured from only one end) and every fourth runner vertically;

(b) On straight run Scaffolds, longitudinal bracing across the inner and outer rows of posts shall be installed diagonally in both directions, and shall extend from the base of the end posts upward to the top of the Scaffold at approximately a 45 degree angle;

(c) Where conditions preclude the attachment of bracing to posts, bracing shall be attached to the runners as close to the post as possible;

(d) Bearers shall be installed transversely between posts, and when coupled to the posts, shall have the inboard coupler bear directly on the runner coupler. When the bearers are coupled to the runners, the couplers shall be as close to the posts as possible;

(e) Runners shall be installed along the length of the Scaffold, located on both the inside and outside posts at level;

(f) Couplers shall be of a structural metal, such as drop-forged steel, malleable iron, or structural grade aluminium, the use of grey cast iron is prohibited; and

(g) Further requirements to those specified above, shall comply with ~~the technical requirements of~~ OSHA ~~Subpart L Scaffolds,~~ 1926.452 [Additional requirements applicable to specific types of scaffolds, (b) Tube and coupler scaffolds].

(3) Fabricated Frame Scaffolds

(a) Frames and panels shall be braced by cross, horizontal, or diagonal braces, or combination thereof, which secure vertical members together laterally. The cross braces shall be of such length as will automatically square and align vertical members so that the erected Scaffold is always plumb, level, and square. All brace connections shall be secured;

(b) Frames and panels shall be joined together vertically by coupling or stacking pins or equivalent means;

(c) Where uplift can occur, which would displace Scaffold end frames or panels, the frames or panels shall be locked together vertically by pins or equivalent means;

(d) Brackets used to support cantilevered loads shall:

(i) Be seated with side-brackets parallel to the frames and end-brackets at 90 degrees to the frames;

(ii) Not be bent or twisted from these positions; and

(iii) Be used only to support personnel, unless the Scaffold has been designed for other loads.

(e) Further requirements to those specified above, shall comply with ~~the technical requirements of~~ OSHA ~~Subpart L Scaffolds,~~ 1926.452 [Additional requirements

applicable to specific types of scaffolds, (c) Fabricated frame scaffolds].

6.5.8 Suspended Scaffolds

(1) General

(a) Suspended Scaffolds comprise Working Platforms suspended from upper levels for example with ropes, cables or chains and all necessary support framing, with or without Hoisting Equipment (JC226)

(b) Further requirements to those specified above for suspended Scaffolds, shall comply with:

(i) ~~the technical requirements of~~ OSHA~~, Subpart L Scaffolds,~~ 1926.451 [General requirements]; and

(ii) OSHA 1926.452 [Additional requirements applicable to specific types of scaffolds].

(2) The following safety measures shall apply to interior hung Scaffolds which are suspended from roof structures, ceiling beams or other structural members:

(a) Capacity: of interior hung Scaffolds:

(iii) Each Scaffold and Scaffold component except as provided in (ii) below shall be capable of supporting, without failure, its own weight and at least 4 times the maximum intended load applied or transmitted to it; and

(iv) Each suspension rope, including connecting hardware, used on non-adjustable suspension Scaffolds shall be capable of supporting, without failure, at least 6 times the maximum intended load applied or transmitted to that rope.

(b) Construction: of interior hung Scaffolds:

(i) Overhead supporting members (roof structure, ceiling beams, or other structural members) shall be inspected and checked for strength before the Scaffold is erected; and

(ii) Suspension ropes and cables shall be connected to the overhead supporting members by shackles, clips, thimbles, or other means that meet equivalent criteria (e.g., strength, durability).

(c) Inspection:

(i) Scaffolds shall be inspected before every work shift, and ~~I~~ if (JC226) any abnormality is found, the work shall be stopped; repairs made and the Scaffold re-inspected in accordance JSSS 6.5.5 (4).

MD: Inserted for clarity

(ii) Wire ropes, chains, hooks and shackles used in the Scaffolds shall be inspected before every work shift in accordance with JSSS 5.4.1 [*Hoisting and Rigging Equipment*] If any abnormality is found, they shall be replaced.

(d) Prohibited activity

The use of any ladders or stepladders on suspended Scaffolds shall be prohibited.

JC226: modified.

6.5.9 Mobile Scaffolds

(1) Mobile Scaffolds shall be braced by cross, horizontal, or diagonal braces, or combination thereof, to prevent distortion or collapse of the Scaffold and to secure vertical members

together laterally so as to automatically square and align the vertical members. Scaffolds shall be plumb, level, and squared. All brace connections shall be secured.

(2) Scaffold casters and wheels shall be locked with positive wheel and/or wheel and swivel locks, or equivalent means, to prevent movement of the Scaffold while the Scaffold is used in a stationary manner.

(3) Manual force used to move the Scaffold shall be applied as close to the base as practicable, but not more than 1.5 m above the supporting surface.

(4) Power systems used to propel mobile Scaffolds shall be designed for such use. Forklifts, trucks, similar motor vehicles or add-on motors shall not be used to propel Scaffolds unless the Scaffold is designed for such propulsion systems.

(5) Platforms shall not extend outward beyond the base supports of the Scaffold unless outrigger frames or equivalent devices are used to ensure stability.

(6) Where levelling of the Scaffold is necessary, screw jacks or equivalent means shall be used.

(7) Caster stems and wheel stems shall be pinned or otherwise secured in Scaffold legs or adjustment screws.

(8) Safety measures shall be applied before relocating the Scaffolds:

(a) Check the floor surface in advance to prevent the Scaffold from overturning due to any irregularities or obstructions;

(b) Move the Scaffold only after releasing brakes on all castors;

(c) Do not move the Scaffold when any workers or Goods are on the Scaffold;

(d) Ensure that there are no obstructions in the route including any overhead obstructions; and

(e) Do not allow any persons other than workers engaged in the relocation to enter the moving areas of the Scaffold or in the vicinity.

(9) Prohibited activity

Use of the Mobile Scaffolds shall be prohibited for the following:

(a) Use as a support for lifting dropping Goods, debris or waste materials or for dropping same;

(b) Use for the purpose of providing a barrier by covering with sheet material with the risk of collapse due to exposure to wind;

(c) Use for work of grit blasting or water jetting, where the reaction force can destabilise the Scaffold or workers on the Scaffold; and

(d) Use as floor to support mobile ladders, stepladders, trestles.

(10) Further requirements to those specified above shall comply with ~~the technical requirements of~~ OSHA ~~Subpart L Scaffolds,~~ 1926.452 [Additional requirements applicable to specific types of scaffolds, (w) Mobile scaffolds].

6.5.10 Trestle Scaffolds

(1) Trestle Scaffolds can comprise:

(a) Special proprietary type free-standing trestle platforms; or

(b) Scaffold boards or lightweight staging boards supported on stepladders or other tripod type ~~portable~~ ladders.

MD: "Portable" is deleted on the assumption that the revised definition of ladders is accepted. Refer

to JSSS 6.4.4

(2) For requirements on Stepladders refer to JSSS 6.4.4 [~~Portable~~ *Ladders and Stepladders*].

(3) The following safety measures shall apply:

(a) The distance between the centre lines of the supporting stepladders shall not exceed 1.8m, width of the Scaffold boards shall be at least 45 cm;

(b) Scaffold boards shall not be placed any higher than the second highest rung or step of the ladder supporting the platform;

(c) If timber Scaffold boards are used, the overlap between boards shall be at least 20cm; and

(d) The length of projection of the platform from the end support shall be at least 10cm and not more than one-eighteenth of the length of the boards.

6.5.11 Mobile Elevating Work Platforms

This Clause specifies requirements for mobile elevating work platforms (also known as aerial lifts) including extendable boom platforms, articulating boom platforms, vertical towers and a combination of any such devices.

(1) The following safety measures shall apply for placing and operating mobile elevating work platforms:

(a) Only trained Contractor's Personnel, certified as such by the HSO shall be permitted to operate in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*];

(b) All operation shall be carried out in accordance with the manufacturer's written instructions;

(c) Mobile elevating work platforms shall never be used beyond the load limit ~~specified~~ recommended (JC227) by the manufacturer, which shall also be clearly displayed on the equipment; and

(d) Safety devices shall not be switched off or isolated.

(2) Measures before operation of mobile elevating work platform:

(a) Designate operation as "Dangerous Work" and in accordance with JSSS 2.3 [*Prohibition of Entry ~~– Dangerous Work~~*], demarcate working areas and take measures to prevent entry to unauthorised personnel;

(b) ~~Place a Spotter to guide the mobile elevating work platform in accordance with JSSS 2.4 [*Spotters, Flagmen and the like*] and who can request help and lower the working platform should the operator be incapacitated and if somebody does fall, have an escape or recovery plan in place before hand~~; Place a Spotter, in accordance with JSSS 2.4 [*Spotters, Fragman and the like*] to guide the mobile elevating work platform and, in case of emergency to properly address the situation (e.g. to call help when the operator is incapacitated); (JC227)

(c) Determine signals in accordance with JSSS 2.4.5 [*Signals*], and

(d) Determine in advance the appropriate working speed limit for the mobile elevating work platform according to the height of the Working Platform (JC227) and the length of the boom, etc. and ensure that the operator never drives the equipment in excess of this limit.

(3) Measures at locating mobile elevating work platform:

(a) The parking brakes of vehicle shall be set;

(b) Wheel chocks shall be installed before using the mobile elevating work platforms on an incline, provided they can be safely installed;

(c) When outriggers are used, they shall be positioned on pads or a solid surface; and

(d) Lift controls shall be tested each day prior to use to determine that such controls are in safe working condition.

(4) Measures at operation on mobile elevating work platform:

(a) Workers shall always stand firmly on the floor of the basket/working platform, and shall not sit or climb on the edge of the basket or use planks, ladders, or other devices for a work position;

(b) Workers shall use PPE including PFRS;

(c) Workers shall be prohibited from taking dangerous actions such as moving from the working ~~platform/basket~~ basket/Working Platform (JC227) to neighbouring structure, standing on and working from handrail;

(d) When the mobile elevating work platform has both platform (upper) and lower controls, the upper controls shall be in or beside the platform within easy reach of the operator. Lower controls shall provide for overriding the upper controls. Controls shall be plainly marked as to their function. Lower level controls shall not be operated unless permission has been obtained from the worker in the lift, except in case of emergency;

(e) When leaving the operating position and when work is stopped the operator of the mobile elevating work platform shall:

(i) Put the Working Platform (JC227) in the lowest position;

(ii) Stop the prime engine/motor; and

(iii) Apply the parking brake securely and ensure the equipment is securely parked.

(f) Stop work at a height of 2 m or more in case of adverse weather in accordance with JSSS 2.7 [*Adverse Weather Requirements*].

(5) Measures of moving mobile elevating work platform

(a) Mobile elevating work platform shall not be moved when the boom is elevated in a working position with workers in the basket, except for equipment which is specifically designed for this type of operation; and

(b) Before moving the mobile elevating work platform for travel, the boom(s) shall be inspected to see that it is properly cradled and outriggers are in stowed position.

(6) Inspection and maintenance of mobile elevating work platform

(a) Carry out inspection in accordance with JSSS 4.2.1 [*Requirements Generally*]; and

(b) Carry out maintenance, repair and installation/removal of the Working Platform (JC227) in accordance with JSSS 4.2 [*Inspection, Maintenance and Repair*] and JSSS 4.3 [*Safety Requirements*].

(7) Prohibition of use for other purposes

Mobile elevating work platforms shall not be used for any purpose other than the intended original purpose and for example shall never be used for hoisting loads.

JC227: modified.

6.6 ELEVATED ACCESS STRUCTURES

6.6.1 General

This Section includes safety measures relating to Elevated Access Structures which act as act as temporary access, parking, working and/or storage areas which also accommodate Contractor's Equipment, Goods and temporary facilities as necessary to permit the construction operations to be performed from these structures on the underlying or adjacent working area(s) within the Site.

6.6.2 Design and Management Generally

(1) The design, management, provision, safe use and safe removal of Elevated Access Structures shall comply with the requirements of JSSS 6.1.1 [*Design and Provision of Temporary Works Generally*].

(2) For related JSSS requirements, refer to the following and other related parts of JSSS including:

(a) JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*]; and

(b) JSSS 1.37 [*Design and Management of Temporary Works*].

(3) Erection and Removal of Elevated Access Structures

The Contractor shall:

(a) ~~Designate any working areas where any Elevated Access Structures are being erected, altered or removed as Dangerous Areas and e~~ Enclose (JC228) the working area where possible with temporary fences or barriers, prevent entry of any unauthorised personnel or prevent vessels from entering in the case of offshore or marine works and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry ~~– Dangerous Work~~];*

(b) Use of Measures to prevent Workers, Vehicles, Contractor's Equipment and Goods from falling;

The Contractor shall design and provide suitable measures to prevent workers falling including for example handrails specified in JSSS 2.5.5 [*Handrails*] to the perimeter of Elevated Access Structures ~~to prevent workers from falling~~. (JC228)

The Contractor shall design and provide suitable measures to the perimeter of Elevated Access Structures prevent Vehicles, Contractor's Equipment and Goods falling including for example steel edge barriers and kerbs.

All edge barriers and kerbs shall be painted in black and yellow bands to show them as a hazard.

(c) Use of Measures to prevent collision with ~~Marine~~ ~~V~~ vessels; (JC228)

For offshore work, the Contractor shall provide all necessary warning signs, audible alarms, beacons and lighting and serve all notices to the marine or other relevant authorities as necessary to ensure that all shipping, boats and other vessels are aware of changes to navigation due to the presence of any Elevated Access Structures and that all risk of collision is avoided.

JC228: deleted.

6.6.3 Further Safety Requirements

The Contractor shall take all necessary measures to ensure the safe provision, use and removal of Elevated Access Structures, including but not restricted to the following:

(1) Provide warning notices clearly showing the maximum Rated Capacity ~~safe working load~~

in clearly visible locations.

(2) ~~Ensure that the Contractor, together with any other parties considered collectively, NEVER exceed the maximum safe working load.~~ Always respect the maximum Rated Capacity ~~safe working load~~, taking account of all the persons/personnel, vehicles, Goods, etc. on the Elevated Access Structures.~~(JC229)~~

(3) Provide any further signs containing user information or other mandatory usage requirements such as speed limits and markings all as necessary to demarcate roadways and walkways, working, storage, parking and other areas.

(4) Designate all work to and on any Elevated Access Structures and during use, as Dangerous Work and take all further measures that are required by JSSS 2.3 [*Prohibition of Entry ~~– Dangerous Work~~*].

(5) ~~Provide walkways in accordance with JSSS 6.4 [*Walkways, Ladders and Stepladders*].~~

MD: Delete duplication

(6) Provide Walkways (JC229) in accordance with JSSS 6.4 [*Walkways, ~~Ladders and Stepladders~~*].

MD: Should be lower case

(7) Provide adequate lighting to ensure the safety of Contractor's Equipment, equipment of other parties, vehicles and persons in transit or whilst working.

(8) (for offshore work) Provide rescue and lifesaving equipment to be used in the event that any persons fall into the water, including a rescue ~~tender~~ boat (JC229) and life belts or the like.

JC229: modified.

(9) Provide PFAS or PFRS to workers where appropriate including those engaged in the construction and removal of the Elevated Access Structures.

(10) Prevent any accident or collision by ensuring that all Contractor's Personnel that may be working on Elevated Access Structures and any Employer's personnel and other persons that may be present on such structures are fully informed about the work that may be in progress from time to time, including transportation and delivery of Goods and of the measures and any precautions that must be complied with.

(11) Provide relevant training in accordance with JSSS 1.20 [*Safety Induction Training*] to ensure the safety of all persons before they commence work on the Elevated Access Structures.

(12) ~~Ensure the ongoing compliance with safe working practices through the regular meetings required by JSSS 1.15 [*Contractor's Safety Management Activities*].~~(JC230)

JC230:deleted.

6.6.4 Inspection and Maintenance

Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the Contractor shall comply with the following:

(1) Every Elevated Access Structure shall be thoroughly examined by the HSO:

(a) Before it is brought into use;

(b) After any substantial alteration or extension;

(c) At least once in every 7 days; and

(d) Whenever it has been exposed to adverse climatic conditions, heavy seas, earthquake or other factors which may have affected its safety.

(2) A written record of the examination and regular inspections and details of any repair measures shall be prepared by the HSO.

(3) The examination and regular inspections shall include:

(a) Check if the Elevated Access Structure is provided and used in accordance with the Method Statement, Safety Plan and its design;

(b) Check items include:

(i) The structural condition of the Elevated Access Structure and of any deterioration, defect, damage or settlement;

(ii) ~~Fall prevention and all other s~~ Safety ~~requirements and~~ facilities including that for fall prevention (JC231) are intact and fully operational; and

JC231: modified.

(iii) All other requirements of this Section are still being complied with.

(4) The Contractor shall carry out all necessary remedial and repair work necessary to rectify any deterioration, defect or damage and shall if necessary stop the use of the Elevated Access Structure until such work has been properly completed, re-inspected and re-certified as “Safe for Use” by the HSO.

6.7 TEMPORARY ELECTRICAL INSTALLATIONS

MD: Awaiting further information from NK.
MK2: I have not received final confirmation. Our electrical engineer preliminary agreed to our revision. Therefore we proceed to revise as proposed.

6.7.1 General

(1) This Section contains safety requirements for the provision, use, relocation, repair and removal of temporary electrical power and lighting installations at the Site.

(2) Although the work in this Section is temporary, it shall be particularly noted that temporary electrical installations shall be designed, installed, inspected, tested, altered and removed by Contractor's Personnel that are qualified electricians, trained and certified for such operations in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*] and that follow strict procedures prepared by the Contractor and specified in the Method Statement and Safety Plan.

(3) The Contractor shall take precautions against the risk of death or injury from electricity during construction work. In particular, when executing refurbishment work in existing buildings where greater risk exists, the Contractor shall locate and indicate the types, positions and routes of all underground and concealed services with clearly visibly markings on ground, floor, wall and ceiling surfaces, and take all actions necessary to ensure construction safety in compliance with JSSS 3.1.2 [*Preparation and Work Planning*].

(4) The temporary electrical installations and all equipment used shall be safe, regularly inspected and properly maintained.

(5) Temporary electrical installations shall be removed immediately upon completion of the work for which they are used.

6.7.2 Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for Temporary Electrical Installations complying with ~~the technical requirements specified in~~ OSHA ~~PART 1926-Safety and Health Regulations for Construction, Subpart K-Electrical;~~ 1926.405 [Wiring methods, components and equipment for general use].

6.7.3 General Safety Requirements

The Contractor shall avoid accidents to workers engaged on electrical works and also those workers who are not electricians but who are carrying out other works, by taking appropriate measures including the following:

(1) Understanding the system

(a) The Contractor shall ensure that Contractor's Personnel responsible for planning, managing or performing any part of the Works fully understand the danger in relation to electrical system on the (JC232) Site or inside any existing building where any work is to be carried out, to ensure that the integrity of the electrical system is not compromised and all workers remain safe; and

(b) The Contractor shall ensure that relevant parts of existing electrical systems are isolated if the execution of any part of the Works may disturb or damage the existing electrical system and expose persons to electrical danger.

(2) Portable electrical equipment

(a) The Contractor shall ensure that tools, plugs and cables designed for domestic use are not used for construction works unless authorised by the HSO;

(b) The Contractor shall use cordless tools or other tools suitable for the Site conditions;

(c) Where cordless tools are not used, as a first preference the Contractor shall use cord and plug connected tools with a maximum voltage to ground not exceeding 50V/55V; and

NK18: NK is studying (c) above (d) and (3) below with the NK electrical experts, so we will inform you of study results.
We found OSHA specifies ground fault circuit interrupters in § 1926.404 Wiring design and protection, (b) Branch circuits—(1) Ground-fault protection—

MD: Revised text provided by NK on 05/08/22 as follows:

(c) Where cordless tools are not used, as a first preference the Contractor shall use cord and plug connected tools with a maximum voltage to ground not exceeding low voltage such as 50V~~/55V~~ subject to the supply system at the Site and in accordance with the law of the Country; and

Edited as follows:

(c) Where cordless tools are not used, as a first preference the Contractor shall use cord and plug connected tools on a low voltage supply system with a maximum voltage to ground not exceeding 50V subject to the supply system at the Site.

Awaiting further information from NK for editing of the following:

NK2: confirmed above revision.

(d) Where cordless tools or cord and plug connected tools with power supplies as described in (c) above are not available then, subject to authorisation by the HSO, the Contractor shall select cord and plug connected tools which are operated as stipulated below:

Under any of the following conditions, exposed non-current carrying metal parts of cord and plug connected tools shall be grounded:

(i) If in a hazardous (classified) location stipulated in OSHA 1926.407 [Hazardous (classified) locations];

(ii) If operated at over 150V to ground, except for guarded motors and metal frames of electrically heated appliances if the appliance frames are permanently and effectively insulated from ground;

(iii) If the equipment is one of the types listed below:

- Hand held motor-operated tools;
- Cord and plug connected equipment used in damp or wet locations or by workers standing on the ground or on metal floors or working inside of metal tanks or boilers;
- Portable and mobile X-ray and associated equipment;
- Tools likely to be used in wet and/or conductive locations; and
- Portable hand lamps.

(3) GFCI (also referred to as RCD) ~~Residual current (trip) devices~~

NK19: ground fault circuit interrupters is same as RCD.

MD: For better international understanding suggest as above. Both are defined in Annex 1.1

NK2: confirmed above revision.

(a) Ensure that equipment, tools, leads, wires or cables are free of defect or damage, in particular when mains supply is used; (JC232)

(b) Use GFCI or ~~residual current (trip) devices (~~RCD~~)~~ (JC232) to detect any ~~some~~ faults in the electrical system and rapidly switch off the supply; and

(c) GFCI shall be properly installed and enclosed; properly checked ~~daily~~; treated with care; kept free of moisture and dirt; and protected against vibration and mechanical damage. (JC232)

JC232: modified.

NK2: “mains supply” in (a) is used in UK as shown in wikipedia below.

https://en.wikipedia.org/wiki/Mains_electricity

It is not necessary to delete s of mains which is commented by JICA.

Is there any other term to replace mains supply with for readers to understand easily?

(4) Lighting systems

Protect cabling and bulbs against breakage. If a bulb breaks, the exposed filament may present a hazard. Have a system for checking bulbs regularly to maintain electrical safety and to keep the site well lit.

(5) Temporary electrical systems shall not be used in excess of intended loads or rated capacity whichever is less.

(6) Temporary electrical systems shall not be used for any purpose other than the intended original purpose.

(7) Regularly inspect power tools and take them out of service if they are damaged. Tools should be serviced by qualified electricians; makeshift repairs are prohibited.

6.7.4 Method Statement for Temporary Electrical Installations

The Method Statement for temporary electrical installations (required by the Contract and JSSS 1.9 [*Contractor’s Method Statements*] shall refer to the Laws ~~and regulations~~ (JC233) of the Country and the relevant authority which supplies power to the Contractor in relation with relevant temporary electrical installations and shall show:

JC233: deleted.
MD edited for better wording

(1) Required Standards and voltages of electric wires and cables.

(2) Protective work for electric wires and cables.

(3) Electric diagram.

6.7.5 Responsible Personnel

(1) The Contractor shall post the name and contact information for the person in charge of managing and operating the temporary electrical installation.

(2) All other persons shall be prohibited from operating repairing or interfering with the temporary electrical installation unless otherwise instructed or approved by the HSO or person in change.

6.7.6 Inspection, Maintenance and Repair

The Contractor shall inspect the temporary electric facilities and perform all requisite maintenance, replacement and repair to ensure the continued and safe operation including the following:

(1) Daily inspection

(a) Prepare a daily inspection checklist of the temporary electric installations including the condition of associated buildings, enclosures, fences and the like;

(b) Inspect daily; and

(c) Record the inspection results.

(2) Periodical inspection

(a) Prepare periodical (weekly and monthly) inspection checklist including measurement of insulation resistance values of temporary electric installations and the operating status of protective devices against overcurrent, grounding fault, etc.;

(b) Inspect periodically; and

(c) Record the inspection results.

(3) Maintenance and repair

(a) As a result of inspection, carry any maintenance, repair or replacement if and as necessary;

(b) Stop operation of the temporary electric installations or affected parts thereof and prevent any further operation until maintenance, repair or replacement is completed; and

(c) Reinspect, the temporary electric installations or parts thereof, and after the HSO has declared same as “Safe for Use”, operation can then re-commence.

6.7.7 Safety Measures During the Work

The Contractor shall take the following safety measures when installing, moving, removing, repairing temporary electric facilities.

(1) Cabling/Wiring

(a) Carry out cabling/wiring work so that safety distances between cabling/wiring and any other cabling/wiring, posts, gantries, other structures, buildings, enclosures Contractor’s Equipment, vehicles and persons are maintained;

(b) If appropriate separation distances cannot be maintained, enclose cabling/wiring in insulated ducts, conduit or trunking;

(c) Locate cabling/wiring where it does not obstruct other works; and

(d) Always enclose cabling/wiring in insulated ducts, conduit or trunking in working areas or Operational Areas to avoid any risk of contact, damage or injury.

(2) Switchgear, Panels and Switches

(a) Enclose switchgear, panels and switches in waterproof and lockable metal enclosures to suit the environmental conditions, all of which shall be grounded; and

(b) Fuses and circuit breakers shall be suitable for their use and load capacity.

(3) Power Receiving Equipment and Transformers

(a) Power receiving equipment, transformers and the like, shall be located in securely fenced or enclosed and locked compounds, enclosures or buildings from which entry by unauthorised persons shall be prohibited;

(b) Any work in such areas shall be designated as Dangerous Work and the provisions of JSSS 2.1.5 [*Further Requirements for Dangerous Work*] shall be applied; and

(c) All such places shall be clearly indicated as dangerous no entry areas with clear and obvious signage.

(4) Grounding (earthing)

(a) All temporary electric installations shall be grounded for each part to prevent the risk of electric shock due to electrical leakage; and

(b) Grounding electrodes shall be highly conductive such as copper ~~or steel~~. (JC234)

(5) Relocation and Repair Work

(a) Relocation and repair work to or any work (JC234) in the vicinity of temporary electrical installations shall only be performed after the power supply has been turned off, isolation has been confirmed, confirmation that temporary protective casings have been installed over existing cables and no electricity is measured by electricity detection;

(b) When re-energising temporary electric installations during or after any relocation or repair work, the Contractor shall ascertain in advance that there will be no ~~is no risk of~~ electric shock to any persons engaged ~~on or in the vicinity of~~ in the relocation or repair work of temporary electrical installations or any work nearby; and (JC234)

JC234: deleted and modified.

(c) When installation, relocation or repair work of temporary electric installations is completed, the facilities shall be operated only after testing and inspection of the installation by the HSO and after the HSO has declared same as “Safe for Use”.

6.8 ELECTRIC AND GAS WELDING AND CUTTING

6.8.1 General

(1) This Section contains safety requirements for electric and gas, welding and cutting.

(2) Electric and Gas welding and cutting work shall be designated as Dangerous Work and the provisions of JSSS 2.1.5 [*Further Requirements for Dangerous Work*] shall be applied.

(3) Electric and Gas welding and cutting work shall only be performed, inspected and tested by Contractor's Personnel that are qualified welders, trained and certified for such operations in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*] and that follow strict procedures prepared by the Contractor and specified in the Method Statement and Safety Plan.

6.8.2 Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for Electric and Gas Welding and Cutting complying with the ~~technical requirements specified in the~~ following standards:

(1) OSHA ~~PART 1926 Safety and Health Regulations for Construction, Subpart J – Welding and Cutting,~~ 1926.351 [Arc welding and cutting].

(2) OSHA ~~PART 1926 Safety and Health Regulations for Construction, Subpart J – Welding and Cutting,~~ 1926.351 [Gas welding and cutting].

6.8.3 Electric Welding and Cutting

The Contractor shall take the following measures for the electric welding and cutting:

(1) Check measures before operation:

(a) Automatic voltage reduction device for reducing no load voltage to prevent the shock hazard, is fitted and is functioning properly;

(b) Frame of welding machine is properly grounded; (JC235)

(c) The ground resistance shall be sufficiently low for the proper function of GFCI (RCD). (JC235)

(d) Grounding conductor is installed properly and working;

(e) There is no damage to welding cables;

(f) There is no damage to electrode holder, insulation of ground clamp or cable connections; and

(g) Carry out all such further checks that are required by the manufacturer's official maintenance and repair manual.

If any items are found to be missing or defective, the Contractor shall prohibit use until it has been repaired or replaced and the equipment has been inspected, tested and certified as "Safe for Use" by HSO, before it can be used.

(2) Measures to be adopted during operation:

(a) Prevent ~~the occurrence of~~ (JC235) stray currents by securely fixing the ground cable with a ground clamp to a suitable ground, close to the work location;

JC235: added and deleted.

(b) Use cables of the correct type and size and never use alternatives such as tools or reinforcing bars;

(c) When not working, remove electrode from holder and turn off the welding machine;

(d) Weld only in suitable environment and climatic conditions. Stop working outdoors during rainfall and take measures to prevent the welding machine, cables and accessories from getting wet;

(e) If any worker receives an electric shock, the Contractor shall stop the work immediately, identify the cause, prohibit use of the equipment until it has been repaired or replaced and the equipment has been inspected, tested and certified as "Safe for Use" by HSO, before it can be used;

(f) Ensure that workers wear appropriate PPE including personal face protectors for welding and protective gloves as specified in JSSS 2.9 [*PPE and First Aid*]; and

(g) Instruct all workers not to look directly at the electric arc with their naked eyes.

(3) Periodical inspection of welding machines and welding equipment:

(a) Electric welding and cutting equipment shall be inspected and tested periodically in accordance with JSSS 4.2 [*Inspection, Maintenance and Repair*] and JSSS 4.3 [*Safety Requirements*] and

(b) The voltage reduction device shall be regularly inspected and tested at least once every six months.

6.8.4 Gas Welding and Cutting

The Contractor shall take the following measures for gas welding and cutting:

(1) Check measures before operation:

(a) Flashback arrestor to stop flame back-up into the equipment or gas supply line is installed;

(b) There is no damage to gas cylinders, regulators, flashback arrestor, hose bands, hoses, blow pipes, tip nozzles, and other accessories and equipment;

(c) Gas cylinders, regulators and caps and other relevant accessories and equipment have been inspected periodically and certified by HSO as "Safe for Use"; and

(d) Carry out all such further checks that are required by the manufacturer's official maintenance and repair manual.

MD: Numbering corrected.

NK2: no comment.

If any items are found to be missing or defective, the Contractor shall prohibit use until it has been repaired or replaced and the equipment has been inspected, tested and certified as "Safe for Use" by HSO, before it can be used.

(2) Handling of gas welding and cutting equipment

~~Welders engaged in gas cutting and welding shall be aware of the following requirements:~~ (JC236)

(a) Gas hoses and gas weld sets, shall not be damaged or worn ~~and have no risk of~~ to prevent gas leakage; (JC236)

(b) Gas weld sets shall be turned off when not in use and shall not be left lying around;

(c) Gas pressure regulators shall not be operated during cutting or welding operation;

(d) Connections between cylinders, gas hoses and gas weld sets shall be securely tightened with appropriate connectors;

(e) When tip nozzle overheats, flashback is likely to occur, therefore interrupt continuous working, from time to time and cool the nozzle by submerging in water whilst discharging oxygen at low pressure; and

(f) When finishing or interrupting work, completely close the container valves and vent gas in regulators.

(3) Handling of gas cylinders

Workers ~~and workers~~ (JC236) shall be trained to handle gas cylinders so that they are aware of the following requirements:

(a) Not to place gas cylinders:

(i) Where there is insufficient ventilation;

(ii) Near to fires, flames, heat sources, electrical sparks or grinding sparks; and

(iii) Near to Dangerous Goods or Hazardous Substances or near to Hazardous Areas.

(b) Handle gas cylinders with care and do not drop, throw or mishandle;

(c) Keep cylinders cool by shading and do not expose to direct sunlight;

(d) ~~Position~~ Keep cylinders standing during storage and use ~~so that there is no risk of falling~~; (JC236)

JC236: deleted and modified.

(e) Seal cylinders when transporting;

(f) Place compressed gas cylinders upright at all times except while cylinders are actually being hoisted or carried;

(g) Not to place gas cylinders in the vicinity of lightning conductors or grounding rods for electrical equipment;

(h) Mark all gas cylinders as either full or empty and separate them from each other in storage and during use; and

(i) When there is a risk of freezing, do not place gas cylinders in wet or humid places. When valves of cylinder or regulating valves freeze, thaw them out with hot water, do not flame or direct fire.

(4) Safety measures for gas welding and cutting work:

(a) Ensure that all internal and external working areas are fully ventilated;

(b) When checking for gas leakage from the gas welding or cutting equipment, use a liquid detergent or similar, never use flames or fire;

(c) Provide adequate fire extinguishing equipment near the working place, always maintained and certified, suitably labelled, available and positioned so that it can be used immediately when necessary;

(d) Remove oil and dust adhering to the valve of gas cylinders;

(e) Ignition and digestion shall be accomplished only with oxygen supply valve closed;

(f) Ensure that workers wear appropriate PPE including personal face protectors for welding and protective gloves as specified in JSSS 2.9 [*PPE and First Aid*]; and

(g) Instruct all workers not to look directly at the weld with their naked eyes.

(5) Periodical inspection of gas welding and cutting equipment.

Gas welding and cutting equipment shall be inspected and tested periodically in accordance with JSSS 4.2 [*Inspection, Maintenance and Repair*] and JSSS 4.3 [*Safety Requirements*].

6.8.5 Fire Prevention

The Contractor shall take all necessary measures to prevent fires caused by welding and cutting works, including:

(1) When welding or cutting work is carried out on/in containers previously filled with Dangerous Goods or Hazardous Material, the containers shall be thoroughly cleaned so that they are completely free from such Dangerous Goods or Hazardous Material before starting work.

(2) When welding or cutting work is carried out at a place where there is a risk of causing fire either to adjacent buildings or to Contractor's Equipment, Goods, debris, waste or other materials, then fire prevention measures shall be adopted. This may include moving all such Contractor's Equipment, Goods, debris, waste or other materials, from the working area and taking other protective measures.

(3) Welding or cutting work shall not be conducted near Dangerous Goods or Hazardous Substances or in or near to Hazardous Areas.

(4) A sufficient number of fire extinguishers of appropriate types shall be provided, near the working place, always maintained and certified, suitably labelled, available and positioned so that they can be used immediately when necessary.

(5) Spotter(s) shall be provided at areas where welding or cutting work is taking place when there is risk of fire by the heat transmitted or sparks of welding or cutting, getting into walls, floors, ceilings and the like.

(6) When welding, cutting, or heating work is performed on walls, floors, and ceilings, since direct penetration of sparks or heat transfer may introduce a fire hazard to an adjacent area, the same precautions mentioned in this JSSS 6.8.5 shall be taken on the opposite side as are taken on the side on which the welding work is being performed.

CHAPTER 7: EXCAVATION WORKS

7.1 GENERAL

7.1.1 Scope

(1) This Chapter specifies the safety requirements for excavation works which include:

(a) Open-cut and all other types of surface excavation;

(b) Pits, trenches, basements and all other types of structural excavation;

(c) Excavation using all methods such as manual excavation and machine excavation;

(d) Excavation by Blasting (hereinafter referred to as “Blasting Works”);

(e) All associated embankment filling, backfilling and disposal; and

(f) Earthwork Support.

and which are hereinafter collectively referred to as “Excavation Works”.

(2) ~~Excavation in tunnelling is not included.~~ (JC237)

JC237: deleted.

(3) General requirements for example for Contractor’s Equipment, Temporary Works and other related works all which apply to the work in this Chapter, are included in other Chapters of JSSS.

Additional particular requirements are contained in this Chapter.

7.1.2 Monitoring of Excavation Works and Surroundings

(1) The Contractor shall monitor the Excavation Works and surroundings, to demonstrate that the Excavation Works are performing safely, to the designed limits and for the intended purpose.

(2) For more details, refer to JSSS 2.1.7 [*Monitoring and Records*].

7.2 PARTICULAR SAFETY MEASURES

7.2.1 General

(1) The Contractor shall plan all Excavation Works so that they can be executed in a safe and methodical manner.

(2) Unless otherwise specified in the Particular Safety Specification, the Contractor shall be responsible for choosing manual or machine excavation, selecting types of Contractor’s Equipment, types of Temporary Works, Earthwork Support, spoil removal, storage and handling, controlling ground and surface water, forming embankments and cuttings and the like~~, in conformity with GC 4.10.~~ (JC238)

JC238: deleted.

(3) Sloping sides and benching to sides of excavations shall comply with ~~the technical requirements of~~ OSHA ~~Subpart P – Excavations §~~1926.652 [Requirements for protective systems, (b) Design of sloping and benching systems], dependant on the dimensional constraints of the Site and the nature of the soil, hydraulic and geological conditions.

(4) The Contractor shall be responsible for preserving the structural integrity (JC239) of all excavated sides ~~and excavations~~ (JC240) and shall provide whatever Earthwork Support may be necessary to achieve this, in accordance with the requirements of JSSS 6.2 [*Earthwork Support*].

JC239:オープン掘削を前提としているので、掘削した側面について言及するということだと思いますが、その際 structural integrity という言い方でよいものでしょうか。ご検討ください。

This sub-clause specifies excavated side surfaces in open excavation. Please review whether the use of

"structural integrity" is proper.

NK: To MD, Does "structural integrity" mean the stability of excavated slopes? Please kindly review the wording.

JC240: modified.

MD: The clause refers to all types of excavations including open cut and structural excavations. "Structural integrity" which is more than stability, it includes physical homogeneity and strength of sides of all such excavations.

NK2: agreed explain the above to JICA.

(5) The Contractor shall execute all Excavation Works and associated filling, backfilling and Earthwork Support without weakening any ground or causing any damage to ~~any~~ Other Properties ~~buildings, structures and other properties, paved areas, roads, footpaths, fences, railways, waterways, drainage, utilities or any other property on the Site or outside the Site (collectively referred to in this Chapter as "other properties")~~.~~(JC241)~~

The Contractor shall also ensure the safety of all persons, whilst they are working in, under or adjacent to any excavation on or outside the Site.

The Contractor shall take all necessary measures to prevent the occurrence of any such weakening or damage to ~~by~~ Other Properties and obtain the prior consent of the Engineer to such measures before commencing relevant parts of the Excavation Works.~~(JC241)~~

(6) If loose rock, boulders, trees and the like, are positioned above working areas and where there is any risk that these may pose a danger to workers, ~~unless otherwise instructed by the Engineer,~~ the ~~HSO~~ Contractor ~~(JC242)~~ shall prohibit workers from entering the working areas and ~~issue appropriate instructions including for example to~~ take following measures as appropriate:~~(JC241)~~

(a) Provide protective overhead safety barriers or safety nets;

(b) Carefully remove loose rocks; and

(c) Provide (or improve existing) Earthwork Support to unstable areas.

JC241: deleted and modified.
JC242: revised.
NK: HSO shall be left as it is. To MD, please review this.

MD: HSO should remain as this clause is primarily to cover his safety management.

NK2: agreed.

(5) Up to here, JICA comments and NK comments are inserted by NK on 2020/7/31.

7.2.2 Safety Measures Before Commencing Excavation Works

(1) The HSO shall inspect the Excavation Works area and surrounding areas before starting work each day and after adverse climatic conditions or earthquake as described in JSSS: 2.7 [*Adverse Weather Requirements*]. The inspection shall include the following areas and items:

(a) Potentially unsafe areas where there may be any risk of landslide;

(b) Loose rock or boulders which may be at risk of falling;

(c) Cracks in the Excavation Works area and the surrounding area;

(d) Changes in ground water level, surface or any spring water; and

(e) Deleterious effect due to freezing conditions.

(2) As a consequence of such inspections if the HSO ~~may~~ identifies any outstanding risks, the HSO shall prohibit the continuation of any affected work, take necessary corrective

measures and make any necessary amendment to the Safety Plan and instruct all Contractor's Personnel associated with such affected work of any revised safety measures before work is allowed to commence and continue in order to ensure their continued safety. (JC243)

JC243: added.

(3) Install facilities such as stairs and ramps as means of access or egress from the excavation site in accordance with JSSS 6.4.3 [*Vertical Access*].

(4) Provide support or protection for the underground services appropriately in accordance with JSSS ~~Chapter~~ 3 [*Existing Underground, Concealed and Overhead Services*], and take measures, according to the situation, such as indicating clearly the location and precautions of the underground service and providing protective fences for the services.

(5) Prevent workers and construction equipment/transport vehicles from falling at the excavation site, in accordance with JSSS 2.3 [*Prohibition of Entry-Dangerous Work*], install all necessary entry prevention facilities including fences, temporary enclosures, warning flags, "no entry" signs and the like and placing Spotters.

(6) Take the following measures when there is a risk of danger to third parties, workers, construction equipment, etc. by the fall of excavated soil/rock into the lower parts (bottom) of the excavation site;
   (a) Identify dangerous locations, install entry prevention facilities such as fences, temporary enclosures, warning signs, etc. in accordance with JSSS 2.3 [Prohibition of Entry]; and
   (b) Install protective fences that can catch falling rocks, etc.

(7) Preventive measures against falling rocks
   (a) To protect workers from the dangers of falling of loose rocks and soils from the excavated surface, remove the loose rocks, etc. and take appropriate protective measures
   (b) When there is a risk of falling of loose rocks/soils due to the excavation, take measures such as provision of earth retaining and protective net beforehand, and prohibiting workers from entering in the excavation site. (JC244)

JC244: added. (Please revive the previous provisions which were deleted last time.)

7.2.3 Safety Measures During Excavation Works

During the Excavation Works, the Contractor shall:

(1) Not place ~~excavated~~ spoil, filling or Contractor's Equipment near the vertical edge of excavated surfaces.

(2) Stop the Excavation Works where a sign of ground collapse is ~~possible~~ identified during excavation, evacuate all Contractor's Personnel, implement all necessary safety measures, prohibit Contractor's Personnel from recommencing work until all safety measures have been taken.

(3) Backfill any temporary excavation area as soon as possible after the relevant work is completed.

~~(4) Backfill and compact excavated areas that require such backfill as soon as possible after the Permanent Works are completed.~~

(5) For places where open Excavation Works are performed, maintain the necessary illuminance to perform the work safely. (JC245)

JC245: deleted and added.

7.3 MANUAL EXCAVATION WORKS

7.3.1 General

During manual Excavation Works, the Contractor shall:

(1) Not undermine any excavation under and beyond the vertical cutting face. (JC246)

JC246: added.

(2) Not excavate under existing foundations.

(3) Maintain sufficient distance between workers.

(4) When breaking or removing loose rock, pay attention to the stability of the rock and the direction of its fall.

(5) When using a lever for removing rock, select equipment that has appropriate length and strength for the work.

7.4 MECHANICAL EXCAVATION WORK

Refer to JSSS ~~Chapter~~ 4 [*Contractor's Equipment*].

7.5 TRENCHES, PITS AND OTHER TYPES OF STRUCTURAL EXCAVATION

7.5.1 General

The Contractor shall provide Earthwork Support in accordance with JSSS Section 6.2 [*Earthwork Support*] to prevent any danger to workers due to the collapse of excavated surfaces during the excavation of trenches, pits and other types of structural excavation.

7.5.2 Safety Measures During Structural Excavation

(1) Materials and equipment to be used for Earthwork Support shall be appropriate for the width and depth of the excavation and free from damage or defects that might impair their proper function.

(2) Workers shall not be allowed to enter any excavation until Earthwork Support is installed prior to the work.

(3) Excavation to a level greater than 60cm below the planned bottom level of support when ~~of~~ the Earthwork Support itself is not yet installed shall not be allowed. (JC247)

JC247: added.

(4) If temporary removal of individual members of the Earthwork Support is necessary, safety measures shall be taken to ensure the safety of workers, such as installing temporary members to hold the loads imposed on the system.

(5) When removing Earthwork Support, the Contractor shall not allow anyone other than the workers engaged in the removal work to enter the area and the vicinity.

(6) The Contractor shall perform backfilling of any excavation in parallel with the removal of the Earthwork Support.

7.6 BLASTING WORKS

7.6.1 Scope

(1) This Section specifies safety measures for Blasting Works generally for the removal of rock that cannot be undertaken using conventional excavation techniques.

(2) Blasting Works for tunnelling is not included in the scope of this Chapter. ~~Any such work shall be performed in accordance with the Particular Safety Specification.~~ (JC248)

JC248: deleted.

7.6.2 General Blasting Requirements

(1) Blasting shall only be permitted to be performed by the Contractor:

(a) When it is safe to do so and when there is no reasonably identifiable risk of injury or damage being caused to persons or property within or outside the Site;

(b) Where it is not specifically ~~allowed or required~~ prohibited by the Particular Safety Specification; and

(c) ~~During the execution of the Works after~~ When the Contractor has received the Engineer's approval or instruction. (JC249)

JC249: modified.

(2) Blasting when approved, shall only be permitted at times which have been predetermined and agreed with the Engineer and any relevant authority.

(3) The Blasting Works plan shall be described in the relevant Method Statement.

(4) This Section applies particularly where there may be any risk of injury or damage to persons and property from flying debris within or outside the Site.

7.6.3 Blasting Noise (JC250)

JC250: 音量のレベルと、サイト内で規制をかけるということについては、参照文献を確認させてください。dB の表現（dBA とするか否か）についてもそれに合わせて確認願います。

Please submit reference documents for JIICA's confirmation. Please check which of dB or dBA shall be specified.

NK: Please refer to the explanation separately attached..

Noise levels, measured in areas close to the Exclusion Zone and in areas accessible to other workers or the public shall not exceed a sound pressure level of 85 dBA and/or a peak sound level of 110 dB.

Noise levels measured at the boundary of the Site shall not exceed a sound pressure level of 85 dBA and/or a peak sound level of 110 dB.

NK2/MD: The reference is made to the Hong Kong MTR, Materials and Workmanship Specification for Civil Engineering Works, Blasting Works clause 25.12, provided by JICA as shown below.

"Noise arising from blasting, when measured at any locations open to the public, shall not exceed a sound pressure level of 85 dBA and/or a peak sound level of 110 dB."

Japanese Noise Regulation Act stipulates noise of the specific construction works shall not exceed 85 dB at the boundary of the working area. It does not mention other than this.

NK propose to replace them with the follows:
Noise levels measured at the boundary of the Site shall not exceed a sound pressure level of 85 dBA.
Noise by the blasting in the Site shall be controlled in accordance with JSSS 2.1.4 [Noise].

To MD; please review the above and below.

The following sentence may be stipulated in 2.1.4 (b) to cover *impulsive or impact noise*.
Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level.
(copied from OSHA 1926.52 (e))

MD2: I suggest editing of your clauses as follows. I have not reviewed or commented on the sound levels that you have specified:

Noise levels measured at the boundary of the Site shall not exceed a sound pressure level of 85 dBA and/or a peak sound pressure level of 110 dB.

Noise from blasting in the Site shall be controlled in accordance with JSSS 2.1.4 [Noise].

I have suggested the addition of "pressure" above to be consistent with the following.

Addition to 2.1.4 (b):

Exposure to impulsive or impact noise shall not exceed 140 dB peak sound pressure level.

NK3: confirmed.

~~7.6.4 Definitions (JC251)~~

~~JC251: 他章では、Scope, Definitions, Compliance Standards の順で章の冒頭に記載されているので、7.6.4 と 7.6.5 を同様の順番にして章の冒頭に移してください。~~

~~In other Chapter, the order of provisions is Scope, Definitions, Compliance Standards. Please put 7.6.4 and 7.6.5 after 7.6.1.~~

~~Definitions of terms for the purpose of this Chapter are as follows.~~

~~(43) "**Blasting**" means blowing up or breaking apart solid rock with the use of Explosives.~~

~~(44) "**Explosives**" means any substance or mixture of substances that is manufactured to produce an explosive effect and which term includes any explosion explosive, Blasting agent and Blasting supplies such as detonators, cords and detonating equipment.~~

~~(45) "Blasting **Exclusion Zone**" (JC251) means an area from which all unauthorised Contractor's Personnel, unauthorised Employer's Personnel and any other unauthorised persons or the general public are prohibited to enter due to the risk of their being affected by the Blasting Works. Unauthorised personnel in this context shall have the same meaning as that stated in Section 2.3 [*Prohibition of Entry – Dangerous Work*] Clause JSSS Sub-Clause 2.3.1 (3).~~

JC252: 2.6.1 (3)でも一般用語で別の意味で使用しているので、ここは Blasting Exclusion Zone とかにした方が良いように思います。

"Exclusion Zone" is defined for other meaning in 2.6.1 (3). It seems this should be "Blasting Exclusion Zone"

NK: We agree to add it. To MD, how do you think?

MD: Blasting Exclusion Zone is fine. I have edited throughout.

For completeness and consistency, I have moved all of the above definitions to Annex 1.1 so

NK2: no comment.

7.6.5 Compliance Standards (JC251: ditto)

(1) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for Blasting Works complying with ~~the technical requirements specified in~~ BS 5607: Code of Practice for the Safe Use of Explosives in the Construction Industry.

MD: Changed for consistency with the changes made to OSHA references.

NK2: no comment.

(2) The Contractor shall obtain the necessary permits, licenses or approvals for Blasting ~~work~~ Works (JC252) and the handling and storage of Explosives associated therewith. The Employer, at the request of the Contractor, shall provide such reasonable assistance to allow the Contractor to obtain properly such permits, licenses or approvals.

7.6.6 Personnel for Blasting Works

(1) Further to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*], the Contractor shall assign the following personnel for Blasting Works:

(a) Explosives engineer; and

(b) Shotfirer(s).

(2) Responsibilities and requirement of personnel for Blasting Works

(a) The Explosives engineer shall plan the Blasting Works, lead the Blasting Works at the Site and perform the safety management of the Blasting Works; and

(b) Shotfirer(s) shall perform safe ~~keeping~~ handling, (JC252) transportation and storage of Explosives, and perform Blasting Works and site safety management.

(3) Safety education and guidance

Further to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*], the Contractor shall ensure that the Explosives engineer and shotfirer(s) have sufficient knowledge of and are able to comply with the following:

(a) Nature of hazards associated with Blasting;

(b) Unsafe conditions and conduct in performing Blasting Works;

(c) Procedures for Blasting Works;

(d) Evacuation and return procedures for any evacuated workers and personnel;

(e) Safety measures when misfiring of Explosives occurs; and

(f) Emergency Response *(actions).* (JC252)

JC252: modified.

7.6.7 Blasting Safety Plan

The Contractor shall prepare a Blasting Safety Plan describing all required safety measures for Blasting Works in addition to the items prescribed in JSSS 1.7 [*Contractor's Safety Plans*] and including the following:

(1) Risk analysis and countermeasures.

(2) Safety measures for transportation, safekeeping, use and disposal of Explosives.

(3) Safety measures for Contractor's Personnel, Employer's Personnel and any other persons, the general public, neighbouring residents and building owners on or adjacent to the Site and who may be affected by the Blasting Works (hereinafter collectively referred to as "persons affected by the Blasting Works" in this Section).

(4) Determination of Exclusion Zone.

(5) Identification of affected areas, buildings, structures and property.

(6) Environmental and health compliance requirements including vibration, noise, fire, and the like, required by ~~Laws of the Country (JC253) and~~ the Contract.

JC253: Is the Law of the Country correct?

MD No it may not be correct, it is actually the law stipulated in the Contract Data. Can be deleted and left as Contract which will cover all.

NK2: no comment (my understanding is to delete the Laws as commented.)

MD2: It originally stated "Law and the Contract" which was correct. As added by JICA, "Law of the Country" is not necessary or correct. To simplify suggest delete the phrase:

", required by Laws of the Country (JC253) and the Contract"

NK3: I cannot understand why Law of the Country is incorrect. Is it because the compliance of the Laws of the Country is specified in GC? I think the Laws include laws in other countries, so JICA want to add of the Country. Can you explain your reply again.

(7) Environmental monitoring plan and methods to record the impact of Blasting on affected buildings, structures and property.

(8) Trial Blasting.

(9) Identification of the Explosives engineer and shotfirers to distinguish from other workers.

(10) Placement of Spotters.

(11) Method of notification of the start date and time of Blasting ~~work~~ Works (JC254) and the serving of notice immediately before commencement of Blasting Works to other persons affected by the Blasting Works.

(12) Evacuation method of all personnel from the Exclusion Zone before Blasting.

(13) Warning system at the time of Blasting.

(14) Procedures and methods for dealing with misfired Explosives (The plan for the treatment procedures for misfired Explosives shall be prepared by reference to BS 5607: Clause 10.5 Misfires).

(15) List of legal and administrative records.

7.6.8 Risk Prevention of Workers and Neighbouring Residents

(1) Notice of Blasting

The Contractor shall notify all persons affected by the Blasting Works. of the planned schedule and start dates and times for Blasting Works. Such information shall be updated as necessary, immediately before the Blasting Works commence.

(2) Risk Prevention Measures

The Contractor shall take all necessary measures to prevent any injury or damage to all persons affected by the Blasting Works, including the following:

(a) Prohibition of overcharging with Explosives more than that specified in the Method Statement prepared based upon the trial Blasting;

(b) Prevention of scattering of flying rock and other debris;

(c) Prevention of collapse of surrounding rocks or ground areas;

(d) Demarcate the Exclusion Zone for Blasting Works and take necessary measures to prohibit any unauthorised persons ~~who may be affected by the Blasting Works~~ (JC254) from entering the Exclusion Zone by a system of signs, signals and Spotters in accordance with BS 5607: Clause 7.4.2 [Blast warning procedures] including the following:

(i) Provide audible warning sirens to warn of impending, current and completed Blasting operations; and

(ii) Place bulletin boards showing the Blasting time, siren code and other precautions at the boundary of the Dangerous Work area.

(e) Establish evacuation requirements, routes and assembly areas and inform all persons affected by the Blasting Works;

(f) Perform firing only after the Spotters have confirmed that all persons affected by the Blasting Works have been evacuated;

(g) Provide communication equipment between the shotfirer and the Spotter, maintain and test the equipment;

(h) Prohibit bringing into the Blasting areas any mobile phone that may affect adversely the electric detonator; and

(i) Unless otherwise specified in the Particular Safety Specification, perform Blasting Works only during the daytime.

JC254: deleted and added.

7.6.9 Handling and Storing of Explosives

(1) Storage of Explosives

(a) The Explosive store to be constructed at the Site shall be a secure, substantial and fireproof building, environmentally controlled, locked, guarded and protected at all times and in accordance with the Laws of the Country;

(b) Appropriate numbers and types of personnel shall be assigned by the Contractor for safekeeping and security of the stored Explosives and any other materials;

(c) The Contractor shall maintain records of the types and quantities of all Explosives received and issued at the store, listing the date and time of receipt and issue and the names of all personnel concerned; and

(d) The Contractor shall submit the records to the Engineer when the Engineer requests.

For other storage requirements, the Contractor shall ~~comply with~~ take necessary measures complying with ~~the technical requirements specified in~~ BS 5607: Clause 9.3 [Storage]. (JC255)

MD: Changed for consistency with the changes made to OSHA references.

NK2: no comment.

(2) Transportation of Explosives

For transportation requirements, the Contractor shall ~~comply with~~ take necessary measures complying with ~~the technical requirements specified in~~ BS 5607: Clause 9.4 [Transport of Explosives on Site]. (JC255)

MD: Changed for consistency with the changes made to OSHA references.

NK2: no comment.

(3) Quantity of Explosives at the Blasting site

(a) No Explosives shall be stored at the Blasting site;

(b) The quantity of Explosives to be transported from store to the Blasting site shall be limited to the estimated quantity of consumption for the Blasting; and (JC255)

(c) Explosives not used on the day shall be returned to the Explosives store.

(4) Handling of Explosives

(a) Explosives shall be handled with extreme care ensuring that they are not hit, thrown or dropped;

(b) Containers for Explosives shall be solidly constructed from timber or non-conducting material and metals such as iron or foil must not be used on inner surfaces;

(c) Explosives and detonators shall be separately stored in lockable containers;

(d) The containers for Explosives shall protect against water ingress, impact damage; and

(e) Smoking, use of matches, lighters, flames, sparks and the like shall be prohibited in areas where Explosives are being transported, stored and handled, notice boards and warning signs shall be placed in suitable positions.

(5) Records of Blasting and Explosives

(a) The Shotfirer shall prepare daily work records showing the date and time of each Blasting operation, quantity of Explosives received, consumed, misfired and

remaining, number of blast holes, charging method for the Blasting and treatment of misfired Explosives;

(b) The Explosives engineer shall check and countersign the Blasting Works records; and

(c) The Contractor shall submit the records to the Engineer when the Engineer requests.

(6) Notice to the Engineer

The Contractor shall notify the Engineer in writing as follows:

(a) ~~D~~ Notification of delivery (JC255) of Explosives to the store and from the store to the Site, shall each be given to the Engineer by no later than noon on the day preceding the scheduled date of the arrival of Explosives at the store and the delivery to the Site;

(b) Notification of intended Blasting Works shall be given to the Engineer by no later than noon on the day preceding the scheduled date of the Blasting operation; and

(c) Notification of the schedule for the following week's Blasting shall be given to the Engineer by no later than Friday morning of the preceding week.

JC255: deleted, added and modified.

7.6.10 Trial Blasting

The Contractor shall perform trial Blasting in accordance with the Blasting Safety Plan provided in JSSS 7.6.7 [Blasting Safety Plan] for the following purposes, and modify the said Blasting Safety Plan according to the results of the trial Blasting:

(1) Confirm the characteristics of rock and topography at the Blasting site that will affect the Blasting operations.

(2) Confirm the suitability of the planned Blasting method, Explosives amount, and scattering prevention and other protection measures.

(3) Confirm the safety of all persons affected by the Blasting Works.

(4) Confirm that the Contractor's criteria are adequate for the purpose of JSSS 7.6.11 [*Monitoring Impact of Blasting Works on Other Properties*].

The Contractor shall submit the trial Blasting reports with any consequent changes to the Blasting Safety Plan to the Engineer before proceeding with the Blasting Works.

7.6.11 Monitoring Impact of Blasting Works on Other Properties

The Contractor shall comply with the requirements of JSSS 7.1.2 [*Monitoring of Excavation Works and Surroundings*].

7.6.12 Particular Safety Measures for Blasting Works

(1) Identification of Blasting workers

Provide clear visible identification mark, uniforms or marked safety helmets to distinguish the Explosives engineer and shotfirer(s) engaged in Blasting Works from other workers.

(2) Drilling Work

(a) No drilling shall be allowed in the hole formed for previous Blasting; and

(b) If any misfired Explosives are found during the drilling operation, the drilling shall be stopped and the misfired Explosives shall be treated in accordance with the procedures planned in JSSS 7.6.7 [*Blasting Safety Plan*] and JSSS 7.6.13

[*Measures after Blasting*], (2) [*Treatment of misfired Explosives*].

(3) Explosives Charging

(a) Drilling operations shall not be permitted during charging of Explosives;

(b) Before charging, thoroughly clean the holes and do not leave any dust or debris; and

(c) Shock and friction such as the following, which can cause accidental initiation of the charges, shall be avoided:

(i) the over-vigorous use of stemming rods to force Explosives into a shot hole;

(ii) the use of drill rods or other metal tools in a shot hole containing Explosives;

(iii) vehicles running over Explosives and other hazards involving impact or concussion; and (JC256)

~~(iv) shock tube detonators being initiated when subjected to "snap, slap and shoot".~~ (JC256)

JC256: deleted and modified.

For other safety measures for charging work, the Contractor shall comply with BS 5607: Clause 10 [Safety when using Explosives].

(4) Handling Detonators

(a) Measures for Blasting using electric detonators:

(i) Make sure electric detonator's leg wires shall be kept short-circuited until they are connected into the circuit for firing;

(ii) Check if shotfiring cables are not cut or damaged;

(iii) Make sure electric detonators shall be kept away from electric lighting supplies, power supplies and other electrical sources that may cause electric leakage;

(iv) Check if there are no missing or wrong wiring connections or mis-connection with previous blast wires;

(v) Make sure there are no stray electric currents;

(vi) Do not use electric detonators if there is any danger of electrical interference for example from radio-frequency radiation near radio communication facility or radar; and

(vii) Install a lightning detector near the Blasting area, stop Blasting Works when there is a risk of lightning strike, and evacuate workers to a safe place.

For other safety matters for Blasting with electric detonator, the Contractor shall comply with BS 5607: Clause 10.4.3 [*Electric detonators*].

(b) Measures for Blasting using non-electric detonators:

(i) Do not cut or damage the shock tube; and

(ii) Before firing, check the connections visually and make sure that there are no missing or previous wiring connections or wrong wiring connections.

(5) Measures in Ignition:

(a) The connection between the shotfiring apparatus and shotfiring cable shall be made just before ignition;

(b) Ignition shall be made at a safe place isolated and protected according to the degree

of the blast; and

(c) The handle shall be removed from the shotfiring apparatus except when igniting.

7.6.13 Measures after Blasting

(1) Confirmation of safety of Blasting area after Blasting:

(a) No persons other than the shotfirer shall enter the Blasting site or its vicinity until the shotfirer has inspected the area and confirmed that it is safe to re-enter; and

(b) The shotfirer shall inspect the area and surrounding area of the Blasting site to check that there is no danger of falling or collapsing of ground and rocks or misfired Explosives.

(2) Treatment of misfired Explosives

If, after ignition, the loaded Explosives did not explode, or if it is difficult to confirm the explosion, the misfired Explosives shall be treated in accordance with the treatment of misfired Explosives in the Blasting Safety Plan, and BS 5607: Clause 10.5 [Misfires] including the following:

(a) Procedure of treatment of misfired Explosives

The following treatment procedure of misfired Explosives shall be taken:

(i) Immediate remedial action;

(ii) Delayed remedial action;

(iii) Further attempt at detonation; and

(iv) Inspection to confirm complete detonation.

The details of the above actions are stipulated in succeeding (b) to (d).

(b) Immediate remedial action

The following initial actions shall be taken by the shotfirer:

(i) Prohibit anyone other than the shotfirer and other authorised personnel from entering the Blasting site;

(ii) Entry to the Blasting site shall only be permitted after the elapsed time from the occurrence of misfire as specified in the Blasting Safety Plan;

(iii) Disconnect from the shotfiring apparatus any removable handle or key and the shotfiring cable, and short-circuit or ground the bare wires together;

(iv) When safe to do so, examine the cable and connections for any defects, and remedy any defect so found;

(v) Make a further attempt to fire the shot;

(vi) Report to the Explosives engineer for further instructions;

(vii) Do not collect any exposed Explosives (JC257) before further action is taken;

JC257: modified.

(viii) Do not allow drilling or any other site work to be carried out in the vicinity of the misfire until the misfire has been remedied, unless this is directly involved in the treatment of the misfire; and

(ix) Other actions specified in BS 5607: Clause 10.5.4.1 [Initial actions].

After the initial actions, the following initial remedial actions shall be taken by the shotfirer:

(i) When safe to do so, examine the cable and connections for any defects, and remedy any defect so found; and

(ii) Make a further attempt to fire the shot.

(c) Delayed remedial action and further attempt at detonation:

(i) After the immediate remedial action, when necessary, the delayed remedial action and further attempt at detonation shall be taken.

(ii) The delayed remedial action and further attempt at detonation should be safe removal of the stemming to allow re-priming, or drilling and firing relieving holes placed so as to work away the rock surrounding the stemming and charge of the misfired shot holes.

(iii) The action and attempt shall be taken in accordance with the Blasting Safety Plan, and BS 5607: Clauses 10.5.4.2 [Written instructions], 10.5.4.3 [Attempts to re-fire], 10.5.4.4 [Drilling relieving holes] and 10.5.5 [Drilling relieving holes].

(d) Inspection to confirm complete detonation

After further attempt at detonation, inspection shall be made to confirm complete detonation. If any non or partial detonation is found, remedial measures shall be taken according to Figure-1 Procedure to remedy misfires in BS 5607: Clause 10.5.1 [General].

(e) Take appropriate steps to prevent theft of Explosives and detonators or their initiation by an unauthorised person; and

(f) The Contractor shall promptly notify the Engineer of any misfire event and the remedial actions.

CHAPTER 8: FOUNDATION PILING WORKS

8.1 GENERAL

8.1.1 Scope

(1) This Chapter specifies the safety requirements for piling works which include:

(a) Driven Piling;

(b) Cast-in-place Piling; and

(c) Hand-dug Piling

and which are hereinafter collectively referred to as “Foundation Piling Works”.

(2) General requirements ~~for example~~ (JC258) for Contractor’s Equipment, Temporary Works and other related works all which apply to the work in this Chapter, are included in other Chapters of JSSS.

Additional particular requirements are contained in this Chapter.

JC258: deleted.

8.2 PARTICULAR SAFETY MEASURES

8.2.1 General

(1) Foundation Piling Works and all operations connected therewith shall be designated as Dangerous Work and the Contractor shall enclose the working area with temporary fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry ~~– Dangerous Work~~*].

(2) Unless otherwise specified in the ~~Particular Safety Specification~~ Contract, the Contractor shall be responsible for selecting methods of working and types of Contractor’s Equipment and Temporary Works suitable for the purpose in conformity with GC 4.10 [*Site Data*]. (JC259)

(3) In accordance with JSSS 6.2 [*Earthwork Support*] the Contractor shall be responsible for maintaining the structural integrity of the sides of all excavated or drilled pile excavations and shall provide whatever temporary or permanent Earthwork Support that may be necessary to achieve this.

(4) The Contractor shall execute all Piling Works without weakening any ground or causing any damage to ~~any buildings, structures and other properties, paved areas, roads, footpaths, fences, railways, waterways, drainage, utilities or any other property on the Site or outside the Site (collectively referred to in this Chapter as “other properties”).~~ Other Properties. (JC259)

(5) The Contractor shall also ensure the safety of all persons, whilst they are working in, under or adjacent to any piling excavation on or outside the Site.

(6) The Contractor shall take all necessary measures to prevent the occurrence of any such weakening or damage to ~~other properties~~ Other Properties and obtain the prior consent of the Engineer to such measures before commencing relevant parts of the Foundation Piling Works. (JC259)

~~Unless otherwise specified in the Particular Safety Specification, such~~ ~~The Contractor shall take further~~ measures ~~shall include design by the Contractor and provision~~ ~~of~~ Such measures shall include the provision of permanent or temporary supports and reinforcing of ~~such~~ foundations, structures, buildings, roads or paved areas or the like, either on or adjacent to the Site. ~~and obtaining the prior consent of the Engineer before commencing such Foundation Piling Works~~. (JC259)

JC259: deleted, modified and added.

MD3: the alternative text does not read correctly suggest delete separate clause number and edit as above

8.2.2 Safety Measures Before Commencement

The Contractor shall plan all Foundation Piling Works before commencement so that they are executed in a safe and methodical manner. The safety measures before commencement of the Works shall be as follows:

(1) The HSO shall inspect the Foundation Piling Works' working area and surrounding areas and ensure that all of the following is acceptable before allowing the Foundation Piling Works to commence:

(a) The ground is level and capable of supporting the loading of the Contractor's Equipment including any dynamic effect of the Foundation Piling Works and the load of any materials to be placed thereon;

(b) The area is clear of any obstructions; and

(c) The areas are properly drained and free from standing water.

If necessary, the Contractor shall improve the ground by stabilising, cleaning, draining, providing paving and/or placing steel decking and temporary piling and the like to provide a suitable, clean, dry and safe working area without causing any risk to the stability of Contractor's Equipment or materials.

8.2.3 Safety Measures for Transportation on Site - Appropriate Equipment and Vehicle

Piles and pile casings, liners, reinforcement cages and the like shall not be transported or relocated by use of pile driving or drilling machines. In all cases the Contractor shall use cranes accompanied or where necessary, trucks and flatbed trailers for the transportation or relocation.

8.2.4 Safety Measures for Driven Piling

The Contractor shall:

(1) Select correct rigging method and appropriate Rigging Equipment to suit the characteristics of the lifting or pile driving machine and the piles, so that piles are mishandled or dropped.

(2) Keep workers other than those directly engaged in the driving operations away from the direct working location when driving operations are taking place.

(3) Provide a lifeline to fix PFAS on the lead when the worker works on the lead of pile driving machine in addition to the fall prevention measures stipulated in JSSS 2.5 [*Fall Prevention*].

8.2.5 Safety Measures for Cast-in-place Piling

When any Cast-in-place Piling Works are adopted, the Contractor shall take appropriate safety measures taking account of features of different methods of work, in particular:

(1) Pile Excavation Works using All-Casing Piling Method:

(a) Keep workers other than those directly engaged in the piling operations away from the pile excavation machine while installing and removing the casing and operating the drop hammer grab. Before any worker is allowed to access the casing or equipment whilst the hammer grab is being operated, ensure that the hammer grab is secured in the casing; and

(b) When any worker needs to enter the casing, confirm that there is no danger in accordance with JSSS 2.1.5 [*Further Requirements for Dangerous Work*].

(2) Pile Excavation Works for Reverse Circulation Bored Piling Method:

(a) When adding or removing drill rods, ensure that a Spotter is present to signal the operator of the drilling machine so that the hands and fingers of workers do not

get caught in the work;

(b) Maintain the water level and concentration level of slurry (bentonite solution) in the drilled hole as planned in the Method Statement and prepare for addition or discharge of slurry, consequent to any fluctuation; and

(c) When providing a mud creation pit or a mud discharge pit, take measures to prevent workers from falling into such pits by providing barriers and signage.

(3) Pile Excavation Works for Auger Piling Method:

(a) To prevent overturn of drilling or auger equipment, consider the weight of excavated material in the drilling bucket or on the auger during operation; and

(b) Keep workers other than those directly engaged in the drilling works, away from the drill or auger to prevent injury through splashing or falling of mud or earth or through contact with drill or auger.

8.2.6 Placement of Concrete

(1) Reinforcement cages shall be designed, manufactured and hoisted into place so that they do not deform.

(2) Provide secure rigging slings and welded metal fixings to ensure that reinforcement cages ~~tremie pipes~~ (JC260) are secure and do not slip or drop off the Hoisting Equipment. (JC261)

(3) Tremie pipes shall be treated in the same manner so that they are secure and do not slip or drop off the Hoisting Equipment ~~[off no danger of slip or drop off the Hoisting Equipment~~.

(4) (JC260) Provide secure Rigging Equipment and operate hoisting to ensure that reinforcement cages and tremie pipes do not slip or drop off from the Hoisting Equipment (JC261) in accordance with the Method Statement and Safety Plan. (JC260)

JC260: 鉄筋籠とトレミーは時点が異なるので分離して記載した方がいい。

It is better to specify separately for reinforcement cages and tremie pipes because their work timing is different.

JC261: "Hoisting Equipment" with capital letters is defined in Chapter 5, only for use in such Chapter. So, probably "hoisting equipment"?

NK: To MD, how do we reply to JICA and take action to change them as commented?

MD: No need separate specification for reinforcement and tremie pipes as the safety requirements are the same, the timing is not relevant, however I have left as separate.

The use of capital H and E is fine anyway however to clarify I have moved the definitions of Hoisting Equipment, Rigging Equipment and all other definitions to Annex 1.1 so all defined terms are now in one place, are more easily found and can be used generally.

I do not see why the additional Sub-Clause (4) is added but I have left as shown.

NK2: the following original stipulation is separated to three Sub-clause, so (4) appears. It is OK.

(2) Provide secure rigging slings and welded metal fixings to ensure that reinforcement cages, tremie pipes are secure and do not slip or drop off the Hoisting Equipment.
Provide secure rigging equipment and operate hoisting to ensure that reinforcement cages and tremie pipes do not slip or drop off from the Hoisting Equipment in accordance with the Method Statement and Safety Plan.

MD2: I will follow your instruction

NK3: no comment.

(5) When handling reinforcement cages and tremie pipes, ensure that a Spotter is present to signal the operator of the machine so that the hands and fingers of workers do not get caught in the work.

8.2.7 Safety Measures for Hand-dug Piling

Unless otherwise specified in the Particular Safety Specification, the Contractor shall comply with the requirements of the following (1) to (3):

(1) Hand-dug Piling shall not be adopted by the Contractor in ground with unfavourable conditions such as:

(a) High ground water levels;

(b) Weak geological structure including the possible presence of voids or caverns;

~~(c) Reclamation, or landfill or chemically contaminated sites,~~ (JC262)

JC262: これを含めなければならない特段の理由がなければ削除してください。通常狭いところで他に選択肢がない場合に行うのが深礎なので、埋め立て地では敢えてやる必要はないですが、禁止する必要もないように思います。

If there is no special requirement to include these sites, please deleted this (c). Hand-Dug Piling is generally adopted to the places such as narrow site. Though it is no need to dare to adopt it to the landfill site, it is not need to prohibit the Hand-Dug Piling.

NK: We agree to JC comment, so deleted.

(d) Possible existence of Hazardous Substances; (JC263)

JC263: added.

(e) Containing loose fill in depths exceeding 10 m;

(f) In areas with history of deep-seated ground movement;

(g) Close proximity to water or sewage tunnels; and

(h) Close proximity to shallow foundations.

(2) Hand-dug Piling may for example be adopted by the Contractor in the following situations where there are no unfavourable conditions:

(a) Steeply-sloping sites with pile depths less than 25 m in depth in soil;

(b) Sites with difficult access or insufficient working room where it may be impractical or unsafe to use mechanical plant; and

(c) Where noise, vibration or damage may be caused by driven or bored piling and which must be avoided.

(3) Hand-dug Piling shall:

(a) Be not less than 2 m diameter;

(b) Be not more than 25m deep; and.

(c) Have continuous shaft lining.

(4) Access/Exit Facilities

The Contractor shall:

(a) Provide safe and efficient access, egress and emergency exit facilities in the shaft for workers;

(b) Provide vertical ladders, securely anchored to framework or shaft lining and complete with a ladder safety system;

(c) Provide a landing rest platform every 5 m, when the length of any ladder exceeds 10 m and otherwise comply ~~with the requirements provided in~~ OSHA 1926.1053 [Ladders] where such requirements exceed those specified in this Sub-Clause;

(d) Ensure that the upper end of vertical ladders projects at least 1m above the ground

and any landing rest platforms;

(e) Provide appropriate and adequate pumps to remove all water from the base of the shafts; and

(f) Take measures to prevent any accidents involving workers with the spoil removal containers and any other equipment particularly throughout the bucket hoisting and descending operations.

(5) Ladder Safety System

(a) A ladder safety system shall be provided to eliminate the risk of injury to any worker falling off the ladder; and

(b) The ladder safety system shall comprise a carrier, safety sleeve, lanyard, connectors, and body harness and all workers shall be trained in its use.

(6) Communication and Signalling Measures

(a) Signals for delivering materials and equipment or discharging excavated materials to and down or from the shaft shall be determined in advance and all workers shall be trained in their use;

(b) Signals and evacuation methods during emergencies shall also be determined in in advance and all workers shall be trained in their use with regular evacuation training; and

(c) Where considered necessary by the HSO handheld radios shall be provided to the Operation Leader working at the base of the shaft and a Spotter at the ground level for all communications.

(7) Environmental Measures

(a) Ensure a continuous, adequate and safe air supply to workers located at the bottom of the shaft;

(b) Provide monitoring equipment, set up alarms and evacuate workers if air quality deteriorates and keep records in accordance with JSSS 2.1. [*Work Environment*]; and

(c) Provide adequate temporary lighting

(8) Measures before Commencing Work

Check the condition of the excavated ground surface in the shaft and whether there is any abnormality in the shaft lining.

(9) Measures during Execution of the Work

(a) When workers are in the shaft, assign a Spotter at ground level and located within direct view at the upper edge of the shaft;

(b) Minimise the depth of each stage of excavation;

(c) Avoid introducing new teams of workers or changing over teams until each stage of excavation is completed and temporary support or shaft lining has been installed;

(d) Provide immediate temporary support for the excavated faces prior to casting the liner;

(e) Providing reinforcement to the concrete liner;

(f) Providing drainage to each stage of excavation with relief wells, sumps and pumping as appropriate:

(g) Stop the work and evacuate workers when abnormal water inflow occurs in the

shaft and resume work only after taking countermeasures and confirming the safety of the Site and the effectiveness of the measures;

(h) Pay constant attention to any changes in soil types, properties, etc. and if any abnormality is identified at the excavated surface during work or in the shaft lining, immediately stop the work, evacuate workers and take appropriate remedial measures, resume the work only after confirming that there is no further risk; and

(i) Ensure nothing is dropped into the shaft that may injure workers.

8.2.8 Monitoring Impact of Foundation Piling Works on Other Properties

The Contractor shall comply with the requirements JSSS 2.1.7 *[Monitoring and Records]*.

CHAPTER 9: CONCRETE WORKS

9.1 GENERAL

9.1.1 Scope

(1) This Chapter specifies the safety requirements for concrete works which include:

(a) Cast-in place (poured or pumped) concrete;

(b) Reinforcement (reinforcing bar and fabric reinforcement);

(c) Formwork (including associated Falsework); (JC264)

and which are hereinafter collectively referred to as “Concrete Works”.

(2) General safety requirements, covering for example Contractor’s Equipment including stone crushing plants and screening equipment, concrete batching plants, Temporary Works and other related matters, ~~all which apply to the work in this Chapter.~~ (JC264) are described in other Chapters of JSSS.

Additional particular requirements are contained in this Chapter.

JC264: deleted and modified.

9.1.2 Safety Plan and Instructions to Workers

Prepare a Safety Plan describing the safety requirements for Concrete Works and inform all workers engaged in the Concrete Works of the content and requirements. The Safety Plan shall pay due care to the workers’ health matters (e.g. back injury) in relation to handling of reinforcement, Formwork panels or other heavy items, and include necessary preventive measures (e.g. using appropriate Contractor’s Equipment, assigning sufficient number of workers).

~~9.2~~ PARTICULAR SAFETY MEASURES ~~FOR CAST IN PLACE CONCRETE WORK~~

MD: edited to be consistent with other Sections (see contents pages)

The following safety requirements are additional to the general requirements described in other Chapters.

9.2.1 Safety Measures at Planning Stage

(1) The Contractor shall plan all Concrete Works so that they are executed in a safe and methodical manner.

(2) The Contractor shall plan the method of placing cast-in-place concrete ~~placement~~ and carry out the design and construction of Formwork and Falsework (JC265) to take account of uneven and excessive impact force and different or asymmetrical loads, thicknesses and pressures in certain areas during concrete placement to avoid deformation beyond allowable tolerances specified in the Contract, any damage or collapse of Formwork and Falsework and show all details in the Method Statement and Safety Plan.

MD: Edited to simplify wording and make term consistent

~~(3) The Contractor shall plan the method of cast-in-place concrete placement and carry out the design and construction of formwork and falsework to take account of uneven and excessive impact force and different or asymmetrical loads, thicknesses and pressures in certain areas during concrete placement to avoid deformation beyond any tolerances for concrete structure that may be specified in the Particular Safety Specification, any damage or collapse of formwork or falsework and show all details in the Method Statement and Safety Plan.~~ (JC266)

JC266: (2)と(3)はほぼ同じ、制作誤差範囲の規定を契約とする（２）か特記安全仕様書とするか

（3）だけの違い。どちらか一つで良い。

(2) and (3) are almost same. Difference is allowable tolerances specified in the Contract in (2) and any tolerances for concrete structure that may be specified in the Particular Safety Specification (3). Only one of two is sufficient to specify here.

NK: agreed.

(4) The Contractor shall provide PPE such as rubber gloves, face masks and goggles to the workers when spraying concrete form release agents to prevent chemical injury, and where there is a possibility that release agent may splash on the third parties, take measures such as establishing exclusion zone with temporary barriers and locate Spotters to prevent those persons from entering the area.

9.2.2 Safety Measures for Placement

The Contractor shall:

(1) Designate concrete placement works (including all pumping and hoisting of concrete) as Dangerous Work, enclose the immediate working area with temporary signs and fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry ~~– Dangerous Work~~*].

(2) Inspect all reinforcement, Formwork and Falsework (JC265) before and during concrete placement. If any ~~defect~~ abnormality is discovered, stop the placement works and evacuate the workers immediately, carry out repairs and reinspect before resuming.

(3) Place the concrete in accordance with the Method Statement and avoid uneven and excessive impact force and different or asymmetrical thicknesses and pressures in certain areas during concrete placement Additional materials shall be stored at the concrete placing site for use to reinforce Falsework (JC265) in case of occurrence of their local deformation.

JC265: modified.

9.2.3 Safety Measures for Placement by Pumping

The Contractor shall take the following safety measures for delivery of cast-in-place concrete with the use of concrete pumps:

(1) Inspect the condition of concrete pump delivery pipes, end hoses and all connections, ensure that they are free from defects and blockage, check that all joints and connections are secure and free from leakage before and during concrete placement works.

(2) Ensure that all delivery pipes, end hoses and other system components are all correctly pressure rated and capable of withstanding the maximum pump pressure.

(3) Maintain a safe separation distance between the delivery pipe, end hose and boom and any existing Overhead Services as required by JSSS ~~Chapter~~ 3 [*Existing Underground, Concealed and Overhead Services*], Table 3.2.1: Safe Separation Distances.

(4) Maintain a safe separation distance from any obstructions (Contractor's Equipment, buildings, etc.) and avoid any risk of hitting or touching any obstructions with the pumping equipment, delivery pipes, end hoses or boom.

(5) Check the ground condition, ensure a firm, stable and horizontal working base at all times and position pumping equipment and ready-mixed concrete trucks at a safe distance from the edge of any excavations, drop or slope to protect against any slippage or fall of equipment and ready-mixed concrete trucks or collapse of ground.

(6) Fully extend outriggers and ensure stability of pumping equipment and ready-mixed concrete trucks at all times.

(7) Arrange proper communications and signals before starting the placement between

workers, Spotters and operators of equipment and ready-mixed concrete trucks and ensure there is a Spotter at the point of placement.

(8) Never allow workers to stand between ready-mixed concrete trucks and pumps when ready-mixed concrete trucks are reversing.

(9) Ensure that workers are out of the path of the boom when moving the boom.

(10) If a blockage or clogging occurs inside the pipeline during the pour, stop pumping immediately and instruct workers to move to a safe position before attempting to remove the blockage or clogging. The pipeline shall be opened after releasing the pressure inside in accordance with the predetermined procedure.

(11) Ensure that hoppers and chutes are securely fixed and that workers are aware of the method of operation and safe use.

(12) Ensure that the delivery pipe and hose at the end of the concreting pump booms are securely connected so that they do not fall or become detached.

(13) Prohibit workers from working on the hopper screen of the concrete pump, remove obstructions and foreign materials in the hopper only after stopping the agitating blade and applying lockout/tagout procedures.

(14) Prohibit workers from entering in front of and below the outlet of concrete pump delivery pipes and end hoses to prevent workers being struck by pipes or flailing hoses.

9.2.4 Safety Measures for Ready-Mixed Concrete Trucks

The Contractor shall take the following measures for the ready-mixed concrete trucks in the transportation and delivery of cast-in-place concrete.

(1) Ensure that drivers are aware of and take due account of the heavy load and high centre of gravity of loaded ready-mixed concrete trucks during delivery and discharge to maintain safety and prevent overturning.

(2) Ensure that workers do not come into contact with and/or become entangled with the rotating drum and other moving parts of ready-mixed concrete trucks and that they are prevented from looking into the drum.

9.2.5 Safety Measures for Use of Concrete Buckets

The Contractor shall take the following measures when using concrete buckets for hoisting and placement of cast-in-place concrete:

(1) Comply with JSSS 5.2.5 [*General Safety Measures for Hoisting Operations*] for selection of proper Hoisting Equipment (JC266) and Rigging Equipment, arrangement of proper communication tools, signals and placement of Spotters.

JC266: same comment as 8.2.6 JC261.

MD: See earlier notes suggest leave as shown.

NK2: no comment.

(2) Ensure that the movable gate is locked before hoisting and is only operated by a skilled worker when it is opened for discharge.

(3) Take measures to stabilise the bucket during hoisting and prevent any uncontrolled swinging. Prohibit workers from pushing and pulling bracket except for minor adjustment of location of the bucket for discharging concrete.

(4) Prevent any persons or workers from entering the places below bucket.

(5) Discharge the concrete slowly and in a controlled manner to prevent the bucket from rebounding after discharge.

9.2.6 Safety Measures for Use of Concrete Vibrators

The Contractor shall take the following measures when using concrete vibrators for compacting of cast-in-place concrete:

(1) Take all necessary measures to prevent electric shock, complying with JSSS 4.3.12 [*Additional Requirements for Electric Powered Equipment*].

(2) To prevent vibration injury to workers, provide anti-vibration gloves and ensure that they are properly used.

9.3 REINFORCEMENT

9.3.1 Safety Measures at Planning Stage

The Contractor shall:

(1) Prepare a Safety Plan, Method Statement and fixing and placing drawings of reinforcement describing the method of cutting, bending and fixing and showing the types and positioning of supports, ties and bracing necessary to support and rigidly secure the reinforcement and to prevent any movement or collapse.

(2) Inform all relevant workers of the content of the Safety Plan, Method Statement and assembly drawings.

9.3.2 Safety Measures at ~~Fabrication,~~ Cutting, Bending, Transporting, Fixing and Placing Stage (JC267)

JC267: modified.

The Contractor shall take the following measures during cutting, bending, transporting, fixing and placing of reinforcement:

(1) Cutting and Bending:

(a) Designate the work as Dangerous Work, enclose the immediate working area with temporary signs and fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry ~~– Dangerous Work~~*];

(b) Maintain the working area in a safe, organised, uncluttered and clean condition at all times, avoid excessive storage by retaining sufficient quantities of reinforcement for immediate use, locate equipment in known positions, prevent any fall or dropping of material, equipment and tools, remove offcuts to a separate area and ensure the area is safe and that the risk of workers falling or tripping is avoided; and

(c) Maintain stored reinforcement material in a safe and secure manner and prevent collapse or fall by providing adequate restraints.

(2) Transporting:

(a) Ensure that Scaffolding and any other temporary structures on which reinforcement is to be temporarily placed is capable of supporting the load, ensure that the load is distributed safely and that ~~is~~ it does not cause any obstruction to the passage of other workers; (JC268)

JC268: modified.

(b) Ensure that reinforcing bar is lifted and suspended horizontally to prevent any slippage during Hoisting Operations and also that it is bundled safely and securely tied to prevent any reinforcing bars from sliding out;

In principle, hoist the bundle of reinforcing bars, keeping them horizontal and maintaining the balance by using two rigging slings; and

(c) When transporting to the working location use flatbed trailers or truck, ensure that the trailer or truck is of sufficient length to avoid any overhang of reinforcing bars and provide appropriate warning signs and lighting on reinforcing bars if necessary in accordance with the local regulations to avoid collision with other vehicles, persons and workers.

(3) Fixing and Placing:

(a) Prepare proper temporary access to and support for fixing and placing reinforcement in position;

(b) Prevent any risk of fall and also any distortion or weakening of reinforcement by prohibiting workers from standing, walking or climbing on such reinforcement and where necessary provide safe temporary boarded walkways for workers use;

(c) Ensure that fixing and placing is in exact accordance with the fixing and placing drawings and that the correct types and positioning of supports, ties and bracing is maintained to properly support and rigidly secure the reinforcement and prevent undue movement or collapse;

(d) When there is any danger of reinforcement falling or collapsing during fixing and placing in wind and rain, stop the fixing and placing work. After conditions improve, inspect the reinforcement and take measures to correct any abnormality before continuing with fixing and placing;

(e) Prohibit working concurrently at levels where any other worker is working underneath in accordance with JSSS 2.6.7 [*Working Above or Below Others*]; and

(f) Provide temporary protection caps to exposed ends of reinforcing bars to prevent injury to workers.

9.4 FORMWORK (INCLUDING FALSEWORK)

9.4.1 General

Any reference to "Formwork" in this Section shall also be deemed to include reference to the associated Falsework for that Formwork. (JC269)

9.4.2 Safety Measures at Planning Stage

The Contractor shall:

(1) Design the Formwork and manage its provision, use and removal in accordance with JSSS 1.37 [*Design and Management of Temporary Works*] and the further requirements of JSSS ~~Section~~ 6.1 [*General Requirements of Temporary Works*].

(2) Prepare a Safety Plan, Method Statement and design drawings of Formwork describing the method of fabrication, assembly, erection and removal and showing details of all materials, components, types and positioning of supports, ties and bracing necessary to create a rigid and secure temporary support structure for the concrete, reinforcement and workers and to prevent any movement or collapse.

(3) Inform all relevant workers of the content of the Safety Plan, Method Statement and design drawings.

9.4.3 Safety Measures at Fabrication and Assembly Stage

The Contractor shall take the following measures during fabricating, transporting and assembling of Formwork:

(1) Designate the work as Dangerous Work, enclose the immediate working area with temporary signs and fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry – ~~Dangerous Work~~*].

(2) Maintain the working area and storage area in a safe, organised, uncluttered and clean condition at all times, avoid excessive storage by retaining sufficient quantities of material for immediate use, locate equipment in predetermined places, prevent any fall or dropping of material, equipment and tools, remove offcuts to a designated area.

(3) Ensure that the Falsework is free from cracks, defects and deformation. (JC269)

(4) Ensure that Scaffolding and any other temporary structures on which Formwork is to be temporarily placed is capable of supporting the load, that the load is distributed evenly and within the allowable stress of Formwork. (JC269)

(5) During any Hoisting Operations, ensure that all necessary measures are taken to prevent Formwork being affected by wind and that any risk of collision and consequent injury and damage is avoided. (JC269)

JC269: modified.

9.4.4 Safety Measures During Dismantling and Removal Stage

(1) Ensure that Formwork is only dismantled when so instructed or approved in writing by the HSO.

(2) After dismantling, stack Formwork panels horizontally to avoid overturning due to strong wind or applied loadings; and

(3) Any protruding nails, wires, projecting members and splinters shall be removed or bent flat to avoid injury to workers and other persons.

Up to here on 2020/8/13

CHAPTER 10: DIVING WORKS

10.1 GENERAL

10.1.1 Scope

This Chapter specifies the safety requirements for Diving Operations which shall include Surface-Supplied Air Diving and SCUBA Diving and which are hereinafter collectively referred to as "Diving Works". (JC270)

Saturation diving and mixed-gas diving are not included.

10.1.2 Definitions

MD: As coordinated with NK< all definitions are transferred to Annex 1.1.

NK2: no comment.

(1) ~~The definition of terms for the purpose of this Chapter are as follows:~~

(a) ~~"**Designated Person in Charge**" or "**DPIC**" means a senior person who, through qualification, experience and capability is deemed by the HSO to be qualified to be in charge of all aspects of the Diving Operation including those affecting the safety and health of members of the Dive Team; (JC270)~~

(b) ~~"**Dive Team**" means Divers, support assistants and dive workboat crew who are involved in any Diving Operation, including the Designated Person in Charge; (JC270)~~

JC270: modified.

(c) ~~"**Diver**" means a worker working in water using underwater breathing apparatus which supplies compressed breathing gas at the ambient pressure;~~ (JC271)

JC271: Annex 1.1 にも定義あり。どちらかを削除。There are definitions in Annex 1.1 and the above, so one shall be deleted.

(d) ~~"**Diving Operation**" means one single diving activity for one Diver or a team of Divers commencing from the time when the first Diver enters the water and extending until the last Diver has left the water, chamber or other environment in which the dive, or any part of the dive, took place and has completed any requisite decompression procedures, including, where it may be reasonably anticipated that this will be needed, any therapeutic recompression. The nature and size of any Diving Operation shall be such that it can be safely supervised by one person;~~

(e) ~~"**Diving Works**" means a part of the Works consisting any activity, made up of~~ one or more Diving Operations~~, commencing from the first Diving Operation and extending until the latest Diver in the last Diving Operation has left the water, chamber or other environment in which the dive, or any part of the dive, took place and has completed any requisite decompression procedures, including, where it may be reasonably anticipated that this will be needed, any therapeutic recompression. "**Diving Works**" is the term used for the overall diving job whether it lasts two hours or two months, and it can be made up of one or more Diving Operation~~; (JC272)

JC272: (d)とほとんど内容が同じで意味を為していません。左記のように修正してはどうでしょうか。
The content is almost same as (d). The revision is proposed as above.

NK: we agree to the above. To MD, how do you think?

MD: The content is not the same as it is defining exactly when the first Diving Operation be assumed to start until the last Diving Operation finishes but on reflection it is OK.

NK2: no comment.

~~(f) "**Dive Safety Plan**" means the Safety Plan prepared for Diving Works in~~

~~accordance with JSSS 10.2 [*Dive Safety Plans*];~~

~~(g) "**SCUBA Diving**" means a diving mode independent of surface supply in which the Diver uses open circuit self-contained underwater breathing apparatus; and~~

~~(h) "**Surface Supplied Air Diving**" (JC273) means a diving mode in which the Diver is supplied at the dive location with a piped supply of compressed air for breathing.~~

10.1.3 Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Chapter or relevant to the subject of this Chapter and which are not fully covered by JSSS, the Contractor shall take necessary measures for Diving Works complying with ~~the technical requirements specified in~~ OSHA ~~29 CFR Part~~ 1910 Subpart T [Commercial Diving Operations] for Surface-Supplied Air Diving and SCUBA Diving (excluding saturation and mixed-gas diving). (JC273)

JC273: modified.

10.2 ~~DIVE~~ SAFETY PLANS

NK3: DIVE will be deleted.
NK3: Annex A1.1.2 (9) "Dive Safety Plan" means the Safety Plan prepared for Diving Works in accordance with JSSS 10.2 [Dive Safety Plans];
This Dive Safety Plan is not specified in 10.2, so (9) should be deleted.

10.2.1 General Requirements for the ~~Dive~~ Safety Plans

~~(1)~~ The Contractor shall prepare Dive Safety Plans as part of the Safety Plan for the Works in compliance with the requirements of with JSSS 1.7 [*Contractor's Safety Plans*].

~~(1) The submission requirements in accordance with JSSS 1.7.3 [*Contractor's Safety Plans*] shall be as follows:~~ (JC274)

~~(a) The Bid Stage Safety Plan shall include the Outline Dive Safety Plan;~~

~~(b) The Baseline Safety Plan shall include the Updated Dive Safety Plan; and~~

~~(c) The Particular Safety Plans shall include the individual Particular Dive Safety Plans to be submitted for and in advance of each Diving Operation.~~

JC274: ドラフトファイナルにおいて、前回のバージョンと比較して Dive Safety Plan の記述をかなり拡充していただいていますが、以下の 2 点に関して違和感があったので、大きく修正しています。

(1) Diving についてだけ、Bid Stage、Commencement、Particular と 3 種類の Safety Plan を要求していること。

NK2: （以下、Safety Plan、Bid Stage Safety Plan、Commencement Stage Safety Plan、Particular Safety Plan を SP、BSP、CSP、PSP と略します。）

潜水作業のみに 3 種類の SP を要求している規定ではありません。他の作業は、CSP で一般的な安全対策が規定されるため、JSSS 1.7.8&1.7.9 で現場の状況や特殊性に応じて PSP を作成する規定としています。

コンクリート工事では、9.2.1 (2)で、PSP とは記述していませんが、コンクリート作業で必要な詳細な SP の作成を規定しています。

発破作業では、1.7 SP の規定に追加して 7.6.7 Blasting Safety Plan の作成を規定しています。

(2) Particular については、ドラフトファイナルで頂いていた記述を見ると、個々の Diving Operation 毎に提出することを求めているように思えるが(10.2.1(2))、Diving Operation の定義と合わせ読むと、例えば「同じケーソンに関する作業をするのに、午前と午後で Diving を 2 回に分けてやるときには、午前で 1 回、午後にも 1 回、それぞれの Diving Operation 事に Safety Plan を提出する」ようなことを意味しているようにも読み取れ、それはさすがにやりすぎのように見える。

NK2: ご指摘の通り Diving Operation は一回の潜水と規定しています。CSP で潜水チームや潜水場所等が記述が無い場合、PSP で実際の潜水作業（複数の潜水）の詳細の記述が必要です。

原案で提案の各潜水毎に必要な SP は、ご提案の Dive Safety Schedule (後述の NK 案は Dive Operation

Safety Plan)で、その管理は DPIC が行うことが現実的と考えます。

上記の事情から、Bid Stage、Commencement に関しては、それぞれの段階での全体の Safety Plan に Diving のことも記述することを求める記述にしてあります。

また、個別の Diving Operation に関する Safety Plan については一日の Diving 作業に関する記載をまとめて「前日までに提出する」ことで記載を修正し、名称も Dive Safety Schedule としています（10.2.4（1）の修正をご覧ください）。

We revised drastically stipulations of Safety Plans because we felt something different from our intention regarding the following two points though you have extended Dive Safety Plan after the last issue.

(1) Only Diving works in JSSS are requested to make three kinds of plan; Bid Stage, Commencement and Particular Plans.

MD: This is not correct as all parts of the Works can have three kinds of safety plan in accordance with JSSS 1.7.3 and exactly as listed above.

NK2: We agree to the above.

A particular Safety plan for other construction activities work will usually not be required if the Bid Stage and Baseline Safety Plans (which should be available at Commencement) are sufficiently detailed.

NK2: We agree to the above.

However, with Diving Works, the Particular Safety Plan is ESSENTIAL for safety and compliance purposes and must be issued before each and every Diving Operation without exception.

NK2: As commented by JICA, Particular Safety Plan cannot be prepared just before every diving operation. I think Particular Safety Plan is prepared to show principle and guidance to actual diving team for diving work including items 10.2.4 (2) (a) to (l). This PSP shall be submitted to the Engineer.

Work and Safety Plan for each diving operation shall be prepared in accordance with PSP. (This is Dive Safety Schedule named by JICA.)

MD2: These activities are the Pre-dive activities referred to by OSHA which must be (and in many cases can only be) carried out immediately before the Diver enters the water. The actual dive conditions existing at the time of the dive (e.g. currents, visibility, wind, tides, temperature, traffic etc. etc. all of which are instantly changeable) will affect the nature of the dive, the profile , how long can be spent at what depths, what work can be achieved during that particular dive, who does what, assigned times, equipment etc. This cannot be done the day before.

Also, it is the responsibility of the DPIC. The HSO does not get overly involved and we do not recommend that the Engineer should be involved in this process unless he want to take personal responsibility for diver safety and diver refusal to work.

Surely the Engineer only needs to know what will be checked (i.e. the check list) before each diver enters the water. This Check list is actually already described in OSHA and will be included in the bid and baseline plan. If he wants, the Engineer can always choose to witness the pre-dive checks to ensure that the safety plan is being followed which is the limit of his obligations.

I can add a clause for this if you require, perhaps as follows:

The Engineer may at any time choose to witness any of the pre-dive or post-dive checks to ensure that the Contractor is complying with any safety plans or Diving Works.

NK3: understood your reply. Please see the modification of 10.2.1 below I proposed. I prefer to add your proposal of additional clause above “The Engineer may at any …”.

(2) It can be read that Particular Plan in DFR requests submission of Plans for each Diving Operation (from 10.2.1(2)) and definition of Diving Operation, for example the Plan should be submitted at each Diving Operation in morning and afternoon for caisson works.) It may be excessive request.

See above, a Particular Safety Plan is necessary before each and every dive operation, meaning that before any diver enters the water there must be a pre-dive safety plan otherwise it is not safe to dive. Please refer to 29 CFR 1910.421(d) Planning and assessment.

§1910.421 Pre-dive procedures.

(a) General. The employer shall comply with the following requirements prior to each diving operation, unless otherwise specified.

(b) Emergency aid. A list shall be kept at the dive location of the telephone or call numbers of the following:
(1) An operational decompression chamber (if not at the dive location);
(2) Accessible hospitals;
(3) Available physicians;
(4) Available means of transportation; and
(5) The nearest U.S. Coast Guard Rescue Coordination Center.
(c) First aid supplies.
(1) A first aid kit appropriate for the diving operation and approved by a physician shall be available at the dive location.
(2) When used in a decompression chamber or bell, the first aid kit shall be suitable for use under hyperbaric conditions.
(3) In addition to any other first aid supplies, an American Red Cross standard first aid handbook or equivalent, and a bag-type manual resuscitator with transparent mask and tubing shall be available at the dive location.
(d) Planning and assessment.
Planning of a diving operation shall include an assessment of the safety and health aspects of the following:
(1) Diving mode;
(2) Surface and underwater conditions and hazards;
(3) Breathing gas supply (including reserves);
(4) Thermal protection;
(5) Diving equipment and systems;
(6) Dive team assignments and physical fitness of dive team members (including any impairment known to the employer);
(7) Repetitive dive designation or residual inert gas status of dive team members;
(8) Decompression and treatment procedures (including altitude corrections); and
(9) Emergency procedures.
(e) Hazardous activities. To minimize hazards to the dive team, diving operations shall be coordinated with other activities in the vicinity which are likely to interfere with the diving operation.
(f) Employee briefing.
(1) Dive team members shall be briefed on:
(i) The tasks to be undertaken;
(ii) Safety procedures for the diving mode;
(iii) Any unusual hazards or environmental conditions likely to affect the safety of the diving operation; and
(iv) Any modifications to operating procedures necessitated by the specific diving operation.
(2) Prior to making individual dive team member assignments, the employer shall inquire into the dive team member's current state of physical fitness, and indicate to the dive team member the procedure for reporting physical problems or adverse physiological effects during and after the dive.
(g) Equipment inspection. The breathing gas supply system including reserve breathing gas supplies, masks, helmets, thermal protection, and bell handling mechanism (when appropriate) shall be inspected prior to each dive.
(h) Warning signal. When diving from surfaces other than vessels in areas capable of supporting marine traffic, a rigid replica of the international code flag "A" at least one meter in height shall be displayed at the dive location in a manner which allows all-round visibility, and shall be illuminated during night diving operations.

Please note that most information will be included in the Safe Practice Manual which we refer to as the Bid Stage Plan developed as necessary in the Baseline Plan. Some information may not be found in the Baseline plan because it cannot be determined until the dive team reaches the dive location and conditions have been assessed there and then.

From the above, we revised the stipulations so that Bid Stage and Commencement Safety Plan shall include plans of Diving Operations at each stage.

We revised JSSS so that each Safety Plan to explain each Diving Operation is requested to be prepared for Diving Operation in a day and submitted at least one day before the day of the Operation. The title is revised to Dive Safety Schedule. (Please see 10.2.4 (1).)

NK: To MD, please review the above comment.

MD: It cannot be accomplished the day before, it is actually intended to be a pre-dive safety plan based upon condition that then exist possibly resulting in cancelling the dive. Advance submission to the Engineer and

others is not possible, but the DPIC must be involved.

NK2: The pre-dive safety plan is same as JICA's Dive Safety Schedule. It shall be prepared by DPIC on previous day of each diving operation.

MD2: Please see above comments and please refer to OSHA 29 CFR 1910.421 Pre-dive procedures. The check list will already be in the Baseline plan (already in OSHA) but the detail cannot be available the day before.

NK3: I understand it now. In relation with this, I think Annex 1.1.2 (9) "Dive Safety Plan" means… will be deleted.

NK2: I propose the following plans:

10.2.1 General Requirements for the ~~Dive~~ Safety Plans for Diving

~~(1)~~ The Contractor shall prepare the following ~~Dive~~ Safety Plans for the Diving Works ~~as part of the Safety Plan for the Works~~ in compliance with and in addition to the requirements of with JSSS 1.7 [*Contractor's Safety Plans*].

~~The submission requirements in accordance with JSSS 1.7.3 [*Contractor's Safety Plans*] shall be as follows:~~ ~~(JC274)~~

(a) Bid Stage Safety Plan for Diving Works; ~~shall include the Outline Dive Safety Plan;~~

(b) Baseline Safety Plan for Diving Works; ~~shall include the Updated Dive Safety Plan; and~~

(c) Particular Safety Plans for Diving Works; ~~shall include the individual Particular Dive Safety Plans to be submitted for and in advance of each Diving Operation~~ . ; and

(d) Pre-dive Safety Plan for diving operation

MD2: We conform that we will change as you have instructed.

NK3: confirmed.

10.2.2 Bid Stage Dive Safety Plan

MD: Is "Dive" to be deleted throughout for all safety plans?

I had used the word to distinguish it from safety plans for all other works.

NK2: JSSS specified 7.6.7 Blasting Safety Plan. However, there is no other specific titled plan such as concrete safety plan, piling safety plan, etc. To avoid argument about naming of SP, we will delete diving from Diving Safety Plan.

MD2: We will delete throughout

NK3: Thank you.

~~(1)~~ In compliance with JSSS 1.7.6 [*Bid Stage Safety Plan*], the Bid Stage ~~Dive~~ Safety Plan shall include an outline plan indicating the Contractor's operational procedures for each diving mode to be used in the Works ~~(referred to in OSHA as the "safe practices manual")~~. This shall be in sufficient detail to give an understanding of the Contractor's intentions regarding the diving safety procedures that the Contractor intends to implement. (JC275)

~~(1) The Bid Stage Dive Safety Plan shall contain a copy of the OSHA standard and the Contractor's policies for implementing the requirements of this standard.~~ (JC275)

JC275: revised and deleted.

MD: We suggest that the safe practices manual can and should be available at Bid Stage, particularly on projects with a large diving component together with a copy of the commercial diving operations standard and a statement of the employer's policy for ensuring compliance with the standard. We suggest that no submission at Bid stage of these important documents (which are normal and straightforward documents) should result in rejection of Bid.

NK2: It seems these provisions are too strict comparing with other Chapters. We can modify for the Contractor

to strictly plan and execute diving works in accordance with OSHA 1910 Subpart T

BSP is defined as the outline of SP. We can request the Bidder to include description they will apply the requirements stipulated in OSHA 1910 Subpart T [Commercial Diving Operations] and also describe their safety plan in accordance with OSHA 1910.420 [Safe practices manual] I propose to stipulate the following in 10.2.2:

MD2: Diving Works are very different to all other works covered by JSSS primarily because of the unique and dangerous environment. The Safe Practices Manual is a largely standard and available document for any capable and experienced dive contractor and it (together with the statement of the employer's policy for ensuring compliance with the OSHA standard) would be expected to be submitted at Bid Stage. As noted above no submission should result in rejection of Bid.

NK3: I understood your explanation above, however we propose the sentence proposed above.

The Contractor's operational procedures referred to in this clause and the safe practices manual are largely if not completely the same thing and as OSHA uses this expression that is why we suggest specific mention so that it is clear.

These are important documents that evidence future intentions for safety compliance.

NK2: It is not same as other clauses of JSSS to contain copies, so this request is deleted and insert the above sentence proposed by me.

MD2: We will comply with your instruction and include the above sentence

NK3: Thank you.

10.2.3 Baseline ~~Dive~~ Safety Plan

(1) In compliance with JSSS 1.7.7 [*Baseline Safety Plan*], the Baseline ~~Dive~~ Safety Plan shall be a development of the Bid Stage ~~Dive~~ Safety Plan and shall include detailed safety procedures and standard checklists to apply to all Diving Operations, equipment procedures, and emergency procedures (at a minimum covering fire, equipment malfunction or failure, adverse environmental conditions and medical illness and injury).

(2) The HSO shall review the Baseline ~~Dive~~ Safety Plan to determine if it is correct and compliant with the requirements of OSHA and JSSS.

(3) A copy of the Baseline ~~Dive~~ Safety Plan together with a copy of the OSHA standard and the Contractor's policies for implementing the requirements of OSHA (from the Bid Stage ~~Dive~~ Plan) shall be made available at the dive location to each Dive Team member and explained to the Dive Team by the HSO and DPIC. (JC276)

JC276: revised and deleted.

10.2.4 ~~Particular~~ Dive Safety ~~Plans~~ Schedule

(1) ~~In compliance with JSSS 1.7.8 [*Particular Safety Plans*], the Particular Dive Safety Plans shall contain all further information specific to each Diving Operation not covered by the foregoing Bid Stage and Baseline Dive Plans together with~~ In order to secure safety of all Diving Operations, a dive safety schedule shall be prepared containing information specific to Diving Operations to be carried out in a day together with all supplemental information obtained during pre-dive planning and assessment, to collectively demonstrate the Contractor's compliance with the requirements of OSHA and JSSS for each Diving Operation, including for example: (JC277)

MD: We suggest it is OK as it was as it is actually a pre-dive safety plan covering a range of subjects for example as following.

NK2: The Particular Safety Plan for the Diving Works should be prepared for the basis of Pre-dive Safety Plan for Diving Operation.

MD2: Please confirm your exact changes, we are not clear on this

NK3: My change is shown 10.2.4 below.

A "schedule" is normally used in the sense of a programme or listing and timing of events, not a plan detailing

the content and actions required by such events.

NK2: Pre-dive Safety Plan for Diving Operation 'JICA's Dive Safety Schedule) shall be specified in addition to 10.2.4 Particular Safety Plan

The Particular Dive Safety Plan shall contain all further information specific to each Diving Operation not covered by the foregoing Bid Stage and Baseline Dive Plans as noted originally.

NK2: I agree to contain all further information specific to each Diving ~~Operation~~ Works not covered by the foregoing Bid Stage and Baseline Dive Plans.

MD2: Please confirm your exact changes, we are not clear on this

NK3: My change is shown 10.2.4 below.

To secure the connection with OSHA, it may be useful to add the reference to "E. 29 CFR 1910.421 Pre-dive procedures".

We suggest as follows:

(1) In compliance with JSSS 1.7.8 [*Particular Safety Plans*], the Particular Safety Plans shall contain all further information specific to each Diving ~~Operation~~ not covered by the foregoing Bid Stage and Baseline Safety Plans together with all supplemental information obtained during pre-dive planning and assessment, as necessary to comply with the requirements OSHA in particular OSHA 1910.421 [Pre-dive procedures] for each Diving Operation.

The Particular Safety Plans shall include for example:

MD: Please advise of your decision on this so that we can complete editing and preparation of the final clean copy

NK2: I propose as follows from your proposal:

10.2.4 Particular Safety Plans

(1) In compliance with JSSS 1.7.8 [*Particular Safety Plans*], the Particular Safety Plans shall contain all further information specific to each Diving ~~Operation~~ Work not covered by the foregoing Bid Stage and Baseline Safety Plans together with all supplemental information obtained during pre-dive planning and assessment, as necessary to comply with the requirements OSHA in particular OSHA 1910.421 [Pre-dive procedures] for each Diving ~~Operation~~ Work.

The Particular Safety Plans shall be prepared for the basis of the Pre-dive Safety Plan for Diving Operation to be carried out in a day.

The Particular Safety Plans shall include for example, however, the following should be modified to be indicative for the use of the he Pre-dive Safety Plan:

MD2: whilst we do not agree, we will comply with your instruction and include the above wording.

Please note that "each Diving Works" is not correct usage; the final two paragraphs are not quite correct and the meaning is not clear; whilst we do not really agree, we suggest the following edited version of your required paragraphs but please check your wording to see if it is clear and correct for you:

NK3: I confirmed your editing below.

(1) In compliance with JSSS 1.7.8 [*Particular Safety Plans*], the Particular Safety Plans shall contain all further information specific to ~~each~~ Diving ~~Operation~~ Works not covered by the foregoing Bid Stage and Baseline Safety Plans together with all supplemental information obtained during pre-dive planning and assessment, as necessary to comply with the requirements OSHA in particular OSHA 1910.421 [Pre-dive procedures] for all ~~each~~ Diving ~~Operation~~ Works.

The Particular Safety Plans shall be prepared for the basis of the Pre-dive Safety Plan for Diving Operation to be carried out in a day.

The Particular Safety Plans shall include the following for example, however, the plan

~~following should~~ shall be modified to be indicative for the use of the ~~he~~ Pre-dive Safety Plan:

(a) Safety procedures and checklists for each Diving Operation;

(b) Name of each Dive Team member, buddy diver assignments, individual work assignment and responsibility and confirmation from the DPIC that they each comply with all diving health and safety requirements and are therefore approved to work on the Diving Operation;

(c) The planned dive profile for each Diver showing their maximum bottom time and ascent rate with decompression stages and times ~~and~~ , (JC277)taking account of repetitive dives;

(d) Description of all diving equipment, diving gases and consumables, PPE, procedures for their use and signed checklists to confirm compliance;

(e) Description of the workboat and workboat facilities, together with information on the location of the workboat in relation to the dive site, and procedures for the use and operation of the ~~dive~~ workboat (JC277) during Diving Operations, any surface hazards and any restriction in operation due to surface traffic conditions;

(f) Description of all other Contractor's Equipment, tools and consumables for the assigned work tasks, procedures for their use and checklists;

(g) The arrangements at the Site of the Diving Works for emergency recompression/decompression and the safe transport of any Diver for treatment.

(h) The climatic, marine, natural and physical conditions that are likely to be encountered during any Diving Operation and the procedures for commencement, continuation or stopping of any Diving Operation following any change in these conditions in accordance with JSSS 10.3 [*Climatic, Marine, Natural and Physical Conditions*];

(i) Communication systems and procedures for communications:

(i) between Divers;

(ii) between Divers and the workboat; and

(iii) Between the work boat and the relevant marine authorities.

(j) Any further information and instructions to be given to the Divers, support assistants and other workers related with the Diving Operations and the working methods and safety measures;

(2) The Particular Dive Safety Plan shall be prepared by the DPIC or another Diver that ~~that~~ has the qualification, experience and capability deemed sufficient by the HSO; ~~A dive safety schedule shall be prepared by DPIC or another Diver that has qualification, experience and capability deemed sufficient by the HSO;~~ ~~(JC277)~~

MD: please note earlier comments.

NK2: We keep the original stipulation..

(3) The Particular Dive Safety Plan shall be reviewed and approved by the HSO; A ~~dive safety schedule shall be submitted to the HSO by the day preceding the scheduled date of the Diving Operations for his review and approval;~~ ~~(JC277)~~

MD: please note earlier comments, such earlier submission will not be possible which is really why there is a DPIC .

NK2: We will adopt original because the PSP is for Diving Work and have time to review and submit to the Engineer.

(4) The content of the Particular ~~dive~~ Safety Plan ~~schedule~~ ~~(JC277)~~ shall be explained to all Dive Team members during the ~~employee~~ briefing by the HSO or DPIC in accordance with OSHA ~~29 CFR~~ 1910.421(f) [Employee briefing];

(5) If considered necessary by either the HSO or DPIC, individual Dive Team members shall be given additional training and testing; and

(6) A copy of the Particular ~~dive~~ Safety Plan schedule ~~(JC277)~~ shall be made available at the dive location to each Dive Team member.

JC277: deleted, added and modified.

MD: please note earlier comments.

NK2: We will adopt original because the PSP is for Diving Work and have time to review and submit to the Engineer.

MD2: we assume that "schedule" is to be deleted.

NK3: yes, correct.
NK2: I propose to add the following new Sub-clause

10.2.5 Pre-dive Safety Plan

The Contractor shall prepare Pre-dive Safety Plan for each Diving Operation as follows:

(1) To contain information specific to the Diving Operation to be carried out in a day to secure safety of Diving Operation, in accordance with OSHA 1910.421 [Pre-dive procedures];

(2) To describe the items given in the above 10.2.4 (1) in specific according the Diving Operation to be made;

(3) To use for briefing to the Dive team.

(4) To be prepared by DPIC or another Diver that has qualification, experience and capability deemed sufficient by the HSO;

(5) To be submitted to the HSO by the day preceding the scheduled date of the Diving Operation for his review and approval;

(6) To be available at the dive location to each Dive Team member.

MD2: We will comply with your instruction and include the above sentence

NK3: confirmed.

10.3 CLIMATIC, MARINE, NATURAL AND PHYSICAL CONDITIONS

10.3.1 General

(1) The Contractor shall compile relevant information from statistical records, recent and current forecasts of conditions which may be encountered in support of the Particular Dive Safety Plan and shall establish criteria and controls for commencement, continuation or stopping of any Diving Operation due to such conditions.

(2) The (updated) Baseline ~~Dive~~ (JC278) Safety Plan shall describe how such criteria shall be applied and how such controls shall be implemented.

MD: Is "updated" necessary and if so why and when? Please refer to notes against JSSS 1.7.3.

NK2: 1.7.12 specified updated SP as below, so JICA added (updated). My understanding is Baseline Plan should be updated when necessary. I cannot find such stipulation now. Do you remember?

MD2: We suggest that the baseline safety plan should be a very comprehensive and largely fixed plan for the entire diving works and that this should not radically change during the works and we suggest that JSSS should not invite the Engineer or Contractor to issue regular updates.

If you require, a suitable Clause can be included (based GC 8.3 last paragraph) as 1.7.~~10~~ 7 (4) say as follows:

> *If, at any time, the Engineer gives notice to the Contractor that the Baseline Safety Plan fails (to the extent stated) to comply with the Contract or to be consistent with the Contractor's stated intentions, and that cannot be corrected by the issue of a Particular Safety Plan, the Contractor shall submit a revised Baseline Safety Plan to the Engineer in accordance with this Clause.*

However please note that JSSS already allows that the Baseline Plan will require fine tuning for particular parts of the Works (e.g. with particular tasks and resources stated) but this will be done via the Particular Safety Plans if and when they are ever necessary.

1.7.12 *The Contractor shall also consider the opinions of his workers and other Contractor's Personnel in preparing Safety Plans or updated Safety Plans.*

NK3: I propose JICA to deleted (updated) and add the addition of your proposed sentence to 1.7.7 (4).

10.3.2 Information on Conditions for ~~Particular Dive Safety Plans~~ dive safety schedule (JC278)

(1) Where necessary, the Contractor shall make exploratory dives to survey and establish all relevant conditions at the dive site such that all ~~Particular Dive Safety Plans~~ dive safety schedule (JC278) are based upon the best and most timely available information.

JC278: deleted and modified.

MD: please note earlier comments.

NK2: as mentioned above, we will specify Particular Safety Plans as original. Not adopt JICA's revision.

(2) Relevant information shall also be obtained by the Contractor from all available sources and shall include for example the following:

(a) Climatic information and forecasting at the diving location:

(i) Wind speed and direction;

(ii) Air temperature;

(iii) Surface visibility, fog, sea mist;

(iv) Likelihood and intensity of electrical storm; and

(v) Weather forecasting.

(b) Water/Marine Conditions

(i) Sea state; wave height and direction;

(ii) Height and time of tides;

(iii) Water depths;

(iv) Water Temperatures;

(v) Water currents, direction and speed;

(vi) Visibility at depths; and

(vii) Water level variation in rivers or lakes during flood periods.

(c) Physical Conditions

(i) Underwater cables and pipes;

(ii) Wreckage and other artificial obstacles;

(iii) Geotechnical conditions affecting the work; and

(iv) UXO, Dangerous Goods and Hazardous Substances.

(d) Natural Conditions

(i) Natural obstructions;

(ii) Coral reef or other marine life to be protected; and

(iii) Danger from wildlife and precautions to be taken.

(e) Surface Traffic

(i) Surface traffic details, timings and restrictions, and

(ii) Danger, precautions and control of surface traffic.

(f) Diving Works Area

(i) Demarcation of diving location; and

(ii) Limits of working area.

10.4 PERSONNEL FOR DIVING OPERATIONS

10.4.1 Qualification of Diving Personnel

Qualification of the Dive Team members shall be in accordance with the specified OSHA requirements and shall for example include the following:

(1) Each Diver shall possess a valid commercial diving certification for the appropriate training level issued by an internationally recognised Diver competence assessment organisation which shall be approved by the HSO and Engineer.

(2) Each Dive Team member shall have the experience and training necessary to perform assigned tasks in a safe and healthful manner.

(3) Each Dive Team member shall have experience and training in the following:

(a) The use of tools, equipment and systems relevant to assigned tasks;

(b) Techniques of the assigned diving mode; and

(c) Diving Operations and emergency procedures.

(4) All Dive Team members shall be trained in ~~cardiopulmonary resuscitation~~ CPR (JC279) and first aid to a minimum standard of that recommended by the International Federation of Red Cross and Red Crescent Societies standard course or equivalent.

JC279: modified.

(5) Dive Team members who are exposed to or control the exposure of others to hyperbaric conditions shall be trained in diving-related physics and physiology.

(6) The qualifications of all Divers shall be checked and verified in accordance with the specified OSHA requirements.

10.4.2 Designated Person-in-Charge (DPIC)

(1) The Contractor shall assign a DPIC to each Diving Operation.

(2) The DPIC shall have experience in, and knowledge of all phases of the Diving Operation for which he is responsible.

(3) The DPIC shall be immediately responsible for the health and safety of the Dive Team.

(4) The DPIC shall be stationed at the dive location, and shall not be stationed at another dive location (i.e., the DPIC must be stationed at one (1) dive location and be responsible only for the Diving Operation at that location).

(5) The DPIC can be a Diver when qualified as a Diver, and when another Dive Team member is available at the dive location who is trained and capable of performing the necessary functions of the DPIC's duties when the DPIC is a Diver in the water.

(6) The qualifications of the DPIC shall be checked and verified in accordance with the specified OSHA requirements.

10.4.3 Duties of DPIC

The DPIC shall have the duties and responsibilities required by the content of this Chapter and the specified OSHA requirements, including the following:

(1) Manage the health and safety of the Dive Team.

(2) Manage and supervise the Diving Operation.

(3) Assign tasks to Dive Team members.

(4) Issue instructions for the Diving Operation to the Dive Team.

(5) Issue instructions to temporarily stop work when the DPIC considers that it is not safe to continue.

(6) Support the HSO with the health and safety management of the Diving Operations.

(7) Ensure that all members of the Dive Team keep records.

(8) Collect records, check, approve and submit to HSO.

10.4.4 Diver Assignments

(1) Each Dive Team member shall be assigned tasks commensurate to the persons experience and training, except that limited additional tasks may be assigned to a Diver undergoing training provided that these tasks are performed under the direct supervision of an experienced Dive Team member.

(2) The HSO shall not permit a Dive Team member to be exposed to hyperbaric conditions against the member's will, except when necessary to complete decompression or treatment procedures.

(3) The HSO shall not permit a Dive Team member to dive or be otherwise exposed to hyperbaric conditions for the duration of any temporary physical impairment or condition ~~which is known to the Diver's employer and the DPIC and~~ -(JC280) which is likely to affect adversely the safety or health of a Dive Team member.

MD: We do not recommend this deletion. Please refer to our previous report dated 29/6/20 for comment on this repeated as follows:

We cannot agree.

OSHA, HSE and most other safety regulations are based upon the duty of care that is generally presumed to be owed by an employer to his own employees.

Your logic that Contractor's Personnel includes the personnel of subcontractors and therefore the Contractor can be presumed to be the employer, would not be legally supportable simply because the Contractor is NOT the employer of his subcontractor's employees. Additionally, the Contractor's interests are very different and it is likely that he may not exercise independent and impartial control.

On many if not most JICA projects, the Contractor will not be the Divers employer because this work will usually be subcontracted.

That is why we have used the Diver's employer because that is legally correct and a practically correct representation of OSHA.

We also consider it is necessary that the DPIC (who may also be the subcontractor's personnel) must be involved in this process (rather than "Contractor") to make sure that the clause is not breached.

This clause starts with "The Contractor shall not permit…"

Giving this further consideration now, we recommend that this better changed to HSO (who acts on behalf of the Contractor) as it really does need to be an independent person enforcing this action.

We do recommend that this is the only part that should be changed otherwise this clause would not be compliant with OSHA

This also requires the same change to the preceding subclause.

NK2: NK already submitted your note to JICA (I cannot find copy of my e-mail). I want to leave this to JICA's decision.

MD2: Understood, we will leave as changed.

NK3: no comment.

(4) ~~No Diver shall dive in any Diving Operation unless the DPIC and the complete Dive Team are present.~~ (JC280)

JC280: deleted.

10.4.5 Assistants and Duties of Dive Team

The Contractor shall appoint such Divers and support assistants within each Dive Team as are considered necessary by the DPIC for the Dive Team to discharge its duties in a safe and competent manner.

All Dive Team support assistants shall have the duties and responsibilities required by the content of this Chapter and the specified OSHA requirements, including the following:

(1) Operate the air compressors.

(2) Control the valve for the surface supply of breathing air.

(3) Communicate with the Diver so that the Diver descends and ascends properly.

(4) Communicate to supply the air to the Diver properly between the assistants in charge to control the valve and to communicate with the Diver.

(5) Inform the Diver immediately when there is any risk due to a failure of air supply, weather change, sea condition changes, operations of other vessels and potential hazards.

(6) Inspect the connection between the helmet and the breastplate of the Diver before the start of Diving Operations when using a diving helmet.

(7) Coordinate the position of the workboat and avoid any conflict with the Diver.

(8) Ensure the safety of the Diver by maintaining communication with voice or video communication device.

(9) Ensure the safety of the Diver by observing the air bubble of breathing of the Diver.

10.4.6 Health Checks

(1) In addition to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*] and in compliance with the OSHA requirement for the Contractor to make himself fully aware, the Contractor shall carry out particular health checks on all Divers to ascertain that they are medically and physically fit to perform their duties.

(2) Such checks shall include for example checks for the existence of any illness or any deficiency in:

(a) The respiratory system, cardiovascular system, nervous system, musculoskeletal system, ear, nose and throat, and endocrine system;

(b) Vision;

(c) Dental health; and

(d) Any other health conditions and disease which may affect the Diving Operation.

(3) Any Diver that does not pass the above checks shall not be allowed to dive until the condition has improved and after further checks are successful.

(4) Additionally, and in accordance with the OSHA standard:

(a) The DPIC shall inquire into each Diver's health prior to each Diving Operation;

and

(b) The Contractor shall advise all Divers of the procedures for reporting physical problems or adverse physiological effects during and after diving.

(5) Consistent with the above and the OSHA provisions, the Contractor shall not require any Diver to dive or otherwise work under hyperbaric conditions when the Diver:

(a) Has any ailment that is likely to adversely affect the safety or health of any member of the Dive Team;

(b) Lacks the necessary training or education; or

(c) Refuses to work under such hyperbaric conditions.

(6) Should a Diver request termination during a dive, ~~it may be necessary to~~ the Contractor shall, if necessary, (JC281) prolong the Diver's exposure to hyperbaric conditions to complete decompression or medical recompression treatment to avoid serious physical harm or death to the Diver.

JC281: modified.

10.5 DIVING EQUIPMENT, TOOLS, FACILITIES AND WORKBOATS,

10.5.1 Diving Equipment

(1) The Contractor shall provide workboats, diving equipment, work tools and other facilities fully in compliance with OSHA ~~29 CFR Part 1910, Subpart T – Commercial Diving Operations, §~~ 1910.430 [Equipment].

(2) Workboats, diving equipment, work tools and other facilities are defined as Contractor's Equipment and shall therefore comply with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*]. (JC281)

JC281: Bette to also refer to JSSS 4 since this relates to Contractor's Equipment?
NK: To MD, please review the above comment.

MD: Not really necessary as it will then also be necessary to add Chapter 6, whereas the reference to JSSS 1.35 covers all.

NK2: leave it as JICA commented.

MD2: Understood, we will leave as commented.

NK3: no comment.

10.5.2 Diving Workboats

(1) Workboats shall be:

(a) Robust and seaworthy;

(b) Stable in operation;

(c) Suitable size, draft and shape to suit the Diving Operations;

(d) Equipped with marine band radio and with a shore station that is attended at all time that the workboat (JC282) is in operation and can provide emergency support if required;

(e) Equipped with marine lighting;

(f) Equipped with life jackets, first aid sets, distress flares and other necessary emergency equipment;

(g) Provided with secure and robust ladders or platforms for Divers to easily enter or exit the water; and

(h) Provided with a roof and cabin to protect the crew and Dive Team from heat, cold

and rain.

(2) Workboats shall be provided with the means to assist an injured Diver from the water (such as an in-water platform, small boat or basket stretcher) or into a diving bell. The Contractor shall ensure that there are sufficient Dive Team members or additional Contractor's Personnel to assist.

(3) Unless otherwise specified ~~the Contractor~~ in the Contract (JC282) shall provide a separate small boat for rescue at the workboat, suitable for assisting and recovering Divers who are in difficulty or have drifted away from position.

JC282: revised.

MD: Change not necessary and not correct.

NK2: we will modify as in the Contract, the Contractor…

MD2: Understood, we will modify as requested

NK3: no comment.

10.5.3 Inspections and Maintenance

The Contractor shall comply with all requirements of JSSS 4.2 [*Inspection, Maintenance and Repair*] and ensure that workboats, equipment, tools and facilities are inspected, fully maintained and operational when mobilised to the Site and thereafter are inspected, maintained and repaired before the commencement of the first and of all subsequent days of operation.

The Contractor shall keep the inspection and working records and make them available for the inspection of the Engineer upon request.

The Contractor shall prohibit use of workboats, equipment, tools and facilities until the requirements of JSSS 4.2 [*Inspection, Maintenance and Repair*] are fully complied with.

10.6 PARTICULAR SAFETY MEASURES

10.6.1 Measures before Diving Operations

The Contractor shall take the following measures before commencement of any Diving Operation:

(1) Dive Teams

(a) Discuss the diving methods and safety procedures;

(b) Discuss the work methods and procedures and the assignment and placing of the Divers and work task sharing;

(c) Advise of the diving timetable and required compliance;

(d) Inform of the climatic, marine, natural and physical conditions;

(e) Conduct the health check; and

(f) Check that support assistants and crew on the workboat are wearing life jackets.

(2) Equipment, work tools and other facilities

Inspect the equipment, work tools and other facilities, prohibit use when any defect or non-compliance is found, reinspect when a repair or replacement is completed.

(3) Diving workboats

(a) Inspect workboats and rescue boats;

(b) Display the international maritime diving signal flag and display signs and lights as necessary on the workboat;

(c) Securely anchor the workboat to the seabed; and

(d) Stop the engine during Diving Operation.

(4) Diving Operation site

(a) Provide signs including red flags, buoys and notices to demarcate the Diving Operation site; and

(b) Install a downline with depth indication marks at 3m intervals from the workboat to the sea bed at the Diving Operation site to act as a guideline for descending or ascending and as a guide for transfer of tools and equipment.

(5) Diving Equipment

(a) Check the diving equipment to be carried by the Divers:

(i) For ~~surface-supplied air diving~~ Surface-Supplied Air Diving, (JC283) check for example: air connections, compressed air supply, weight belt, voice or video, communication device, torch, watch, water depth gauge, knife and the like.

(ii) For SCUBA Diving, (JC283) check for example: first stage, second stage and spare regulators, available air volume, secondary air supply, buoyancy control device, weight belt, tank straps, air valve, (JC284) communication device, watch, water depth gauge, knife and the like.

JC284:1 次 Regulator とは異なるものでしょうか。

Is “air valve” different form first stage regulator?

NK: To MD, please advise about this inquiry.

MD: Yes, it is different. The “air valve” is the air tank valve which is separate and additional to the first and second stages.

NK: no comment.

(b) Check that the downline is secure and tight;

(c) Ensure as a minimum, that a two-way voice or video communication link is set up and working ~~between~~ (JC283) at least between a single selected working Diver and the DPIC at the surface control point; and

If any defect is identified by the above checks, prohibit the Diving Operation from commencing.

JC283: deleted and revised.

10.6.2 Measures during Diving Operations

The Contractor shall take the following safety measures during each Diving Operation:

(1) A designated member (or members) of the workboat crew shall assist the DPIC by ~~acting as tenders for~~ observing the Diving Operations of all Divers throughout all Diving Operation and inform the DPIC when Divers are carried away by currents and their location when they surface after their dive ascent. (JC285)

JC285: modified.

MD: “tender” is the term used in OSHA.

NK2: I found it ain OSHA Tender means an individual responsible for monitoring and communicating with a diver.in §1926.1401 Definitions. Subpart CC—Cranes and Derricks in Construction, but not in Subpart F. We will revise as JICA.

MD2: Understood, we will modify as requested

NK3: no comment.

(2) A designated member (or members) of the workboat crew on the workboat shall also keep a look-out for any other vessels that may approach the Diving Operation site.

The designated member(s) shall alert any other vessels related or not related with the Diving Operations with requisite warning blasts from the workboat's siren, loudhailer, flares and/or flags, etc. in order to prevent them from approaching and entering the Diving Operation site.

(3) Measures for the Divers

(a) Prohibit the Dive Team from commencing any Diving Operation without the DPIC and the complete Dive Team present, ready and equipped;

(b) Ensure that the Divers use the ladders for entering and exiting the water for the Diving Operation;

(c) Ensure that Divers use the downline for descending and ascending;

(d) Maintain constant voice or video communication through the provided link; and

(e) Ensure that the Divers constantly communicate with each other by hand signals and slate messaging.

(4) Ensure the DPIC or a Dive Team member at the surface, constantly observe the weather and marine conditions and there is any change that meets the work stop criteria, or if the conditions are considered to be otherwise unsafe by the DPIC, immediately stop the Diving Operation and ensure that the Divers are removed from the water in a safe and controlled manner.

(5) Safety and Health Management of Diving Operations

(a) Manage the Diving Works for each Diver so the Diver takes sufficient and safe surface time between dives ~~so that there is no risk~~ to maintain his health and wellbeing; (JC286)

JC286: revised.

(b) Ensure that sufficient numbers of Divers and standby Divers are available to ensure that Divers are not in the water for excessive periods;

(c) Ensure that each Diver keeps an accurate record of his dive profile for every dive, showing overall time, bottom time and depth, decompression times and depths and that these are summarised by the Diver with a record of the number of dives on a daily, weekly and monthly basis;

(d) Ensure that the DPIC reviews and approves such records and that same are submitted by the DPIC to the HSO for the HSO's review and countersignature and made available for the Engineer's inspection; and

(e) Unless otherwise required by the Law, the Contractor shall retain all dive records for the periods specified in the10.7.2

10.7 DIVING ACCIDENT RESPONSE PLAN

10.7.1 General

The Contractor shall prepare an Accident Response Plan for the Diving Works in accordance with JSSS 1.24 [*Accident Response Plan*].

10.7.2 Provisions by the Contractor

The Contractor shall comply with following requirements prior to Diving Works.

(1) In accordance with the requirements of OSHA 1910.423(c) [*Recompression facility*], the Contractor shall make a recompression/decompression chamber available at the dive location to treat decompression sickness.

(2) The Contractor shall provide any additional recompression/decompression equipment and medical support facilities as necessary to ensure the health and safety of any members of the Dive Team that may require treatment for decompression sickness and other dive related conditions.

(3) The Contractor shall provide rescue and safety equipment, an emergency aid contact list, a first-aid kit and supplies. The rescue and safety equipment including decompression facilities, first-aid kit and supplies provided at the dive location shall be appropriate for the Diving Works and approved by a physician. When used in a decompression chamber or bell, the first-aid kit and any medication shall be suitable for use under hyperbaric conditions. (JC287)

(4) The HSO and DPIC shall ~~determine whether~~ ensure ~~secure~~ that (JC287)the recompression/decompression chamber, any additional recompression/decompression equipment, medical support facilities, rescue and safety equipment, emergency aid list, and first-aid kit are complete and available at the dive location.

JC287: revised and added.

MD: If changed better to change to “ensure that”.

NK2: We will use “ensure that” as advised.

添付-1 参考書類 4.3.12 及び 6.7.3 電気関係

No.	項目	日本	米国	英国	IEC	結論
B-1	接地方式	中性点接地方式 TT ・ T:電力系統の一点を大地に直接接続する ・ T:電力系統の接地とは無関係に、露出導電性部分を大地に直接接地する 日本の低圧配電線路で一般に用いられている。	非接地方式 TN ・ T:電力系統の一点を大地に直接接続する ・ N:電力系統の接地とは無関係に、露出導電性部分を大地に直接接地する。 ヨーロッパやアメリカの低圧配電線路で一般に用いられており、日本では使用されない。	非接地方式 TN 同左	IEC TC64 電気設備と感電防止 IEC 60364 シリーズ 1 部接地方式	
B-2	ELCB RCD	国内で使用される ELB は Eearth Leakage circuit Breaker の頭文字であるが和製英語らしい。 JIS B9960-1 では漏電保護装置、漏電電流保護装置（RCD）としている。 ELCB は、中性点が接地されていないと検知できない仕組みになっており、 日本のような配電系統でしか使用できない。（非接地系統では正しく動作できない。）	米国では“Ground Fault Circuit Interrupter”、GFCI と呼ぶ。 OSHA §1926.404 Wiring design and protection.に規定。	英国では“residual current device”、RCD と呼ぶ。 英国では、手持ち・移動式機器の漏電事故対策として次を規定している。 1) コードレス機器の使用 2) 交流 55/63.5V 以下の低電圧の使用 3) 接地した電源の使用 4) 追加措置として residual current device (RCD)の使用	IEC 60204-1, 15.1 NOTE2, residual current protective devices (RCDs) と呼ぶ。	地域の電力送電系統が非接地か中性点接地かの違 いにより使い分けるべき
B-3			OSHA §1926.404 Wiring design and protection. (b) Branch circuits—分岐回路 (1) Ground-fault protection—地絡保護 (i) General. 一般事項 The employer shall use either ground fault circuit interrupters as specified in paragraph (b)(1)(ii) of this section or an assured equipment grounding conductor program as specified in paragraph	1) HSE Safety Topics: Electricity - Systems in buildings https://www.hse.gov.uk/construction/safetytopics/systems.htm Portable electrical equipment Tools, plugs and cables designed for DIY and domestic use are not suitable for site conditions. You should use cordless tools or those that		

			(b)(1)(iii) of this section to protect employees on construction sites. These requirements are in addition to any other requirements for equipment grounding conductors. 雇用者は、b)(1)(ii)に規定の GFCI 又は(b)(1)(iii)に規定の接地計画を、現場の被雇用者を保護するために、使用しなければならない。これの要求事項は、機器の接地線に関する他の要求事項に追加する者である。 (ii) Ground-fault circuit interrupters. 地絡回路遮断装置 All 120-volt, single-phase, 15- and 20-ampere receptacle outlets on construction sites, which are not a part of the permanent wiring of the building or structure and which are in use by employees, shall have approved ground-fault circuit interrupters for personnel protection. 全ての現場の本設の建物でない電線に一部である及び被雇用者が使用する 120Volt、単相、15-及び 20 アンペアのコンセントは、人の保護用の公認の接地事故回路遮断装置を備えなければならない。 Receptacles on a two-wire, single-phase portable or vehicle-mounted generator rated not more than 5kW, where the circuit conductors of the generator are insulated from the generator frame and all other grounded surfaces, need not be protected with ground-fault circuit interrupters. 5kW 以下の単相二線式の移動式又は車両搭載型発電機のコンセントは、発電機の回路の電線が発電機の外枠及び接地面から分離されている場合は、接地事故回路遮断装置で保護する必要はない。 (iii) Assured equipment grounding conductor program. 機器の接地線保証計画 The employer shall establish and implement an assured equipment grounding conductor program on construction sites covering all cord sets, receptacles which are not a part of the building or structure, and equipment connected by cord and plug which are available for use or used by employees. This program shall comply with the following minimum requirements: 雇用者は、全ての電線、建物や構造物の一部でないコンセント及び被雇用者が使用できる又は	operate from a 110V centre tapped to earth (CTE) supply system so that the maximum voltage to earth does not exceed 55V. Residual current (trip) devices Where mains voltage (230v) is used, the risk of injury is high if equipment, tools, or leads are damaged or there is a fault. 230v equipment should be visually checked for damage every shift, have a visual inspection every week and have a combined inspection and test before first use on a site and then every month - ideally records of these checks should be kept. An RCD is a device which detects some, but not all, faults in the electrical system and rapidly switches off the supply. 2) Maintaining portable electric equipment in low-risk environments https://www.hse.gov.uk/pubns/books/hsg107.htm electrical equipment: Class I (earthed) and Class II (double insulated) 4) HSE: Guidance: The Electricity at Work, Regulations 1989 https://www.hse.gov.uk/pubns/priced/hsr25.pdf Dangers 129 Techniques employed for achieving the above include: (a) double insulation; (b) earthing; (c) connection to a common voltage reference point on the system; (d) equipotential bonding; (e) use of safe voltages; (f) earth-free, non-conducting environments; (g) current/energy limitation; (h) separated or isolated systems Earthing 137 Earthing and bonding conductors must be suitable for the maximum current which they may carry under fault conditions and be capable of surviving the worst- case fault. 138 Accidents have been caused by the metalwork of portable or transportable equipment becoming live as a result of the combined effects of a fault and high impedance, protective conductor connections. The danger may be reduced by the use of a residual current device (RCD) designed to		

			使用した電線、コンセントに接続された機器の現場の接地線保証計画を作成し実行しなければならない。本計画は次の要求事項を遵守しなければならない。 (A) A written description of the program, including the specific procedures adopted by the employer, shall be available at the jobsite for inspection and copying by the Assistant Secretary and any affected employee. 書面での計画作成、特別な手順、検査、配布 (B) The employer shall designate one or more competent persons (as defined in §1926.32(f)) to implement the program. 計画を遂行する有能な者の任命と (C) Each cord set, attachment cap, plug and receptacle of cord sets, and any equipment connected by cord and plug, except cord sets and receptacles which are fixed and not exposed to damage, shall be visually inspected before each day's use for external defects, such as deformed or missing pins or insulation damage, and for indications of possible internal damage. Equipment found damaged or defective shall not be used until repaired. 機器の日常点検 (D) The following tests shall be performed on all cord sets, receptacles which are not a part of the permanent wiring of the building or structure, and cord- and plug-connected equipment required to be grounded: 接地の必要な機器の点検 (1) All equipment grounding conductors shall be tested for continuity and shall be electrically continuous. (2) Each receptacle and attachment cap or plug shall be tested for correct attachment of the equipment grounding conductor. The equipment grounding conductor shall be connected to its proper terminal. (E) All required tests shall be performed: テストの時期 (1) Before first use; (2) Before equipment is returned to service following any repairs; (3) Before equipment is used after any incident which can be reasonably suspected to have	operate rapidly at small leakage currents (typically not exceeding 30 mA), although these devices do not eliminate the risk of electric shock. RCDs should not be considered as the sole means of protection but as an additional protective measure. Use of reduced voltages 142 Reduced voltage systems are particularly appropriate for portable and transportable equipment, and in highly conducting locations such as boilers and tunnels where the risk of mechanical damage to equipment and trailing cables is high, and/or the body may be damp and have large areas of contact with the conducting location and on construction sites. 143 One example is a building or construction site supply system operating at 55-0-55 V ac single-phase, or at 110 V three-phase with a phase-earth voltage of 64 V ac. Another example is an extra-low-voltage system operating at or below 50 V ac or 120 V dc. *The CTE is one of earth systems in transforms and very common in electrical distribution systems and site safety operations explained in the following web:* *https://www.gstransformers.com/technical/110v-centre-tap-earth-55v-0v-55v.html* *CTE system for portable tools are usually installed with residual-current device (RCD) for safety reasons.* 5) BS 7671:2018 Requirements for Electrical Installations. IET Wiring Regulations *411.8 Reduced low voltage systems 411.8.1 General* *411.8.1.2 The nominal voltage of the reduced low voltage circuits shall not exceed 110 V AC rms between lines (three phase 63.5 V to earthed neutral, single phase55 V to earthed midpoint).*		

			caused damage (for example, when a cord set is run over); and (4) At intervals not to exceed 3 months, except that cord sets and receptacles which are fixed and not exposed to damage shall be tested at intervals not exceeding 6 months. (F) The employer shall not make available or permit the use by employees of any equipment which has not met the requirements of this paragraph (b)(1)(iii) of this section. 機器の使用禁止 (G) Tests performed as required in this paragraph shall be recorded. テストの記録 This test record shall identify each receptacle, cord set, and cord- and plug-connected equipment that passed the test and shall indicate the last date it was tested or the interval for which it was tested. This record shall be kept by means of logs, color coding, or other effective means and shall be maintained until replaced by a more current record. The record shall be made available on the jobsite for inspection by the Assistant Secretary and any affected employee. (2) Outlet devices. Outlet devices shall have an ampere rating not less than the load to be served and shall comply with the following: (i) Single receptacles. A single receptacle installed on an individual branch circuit shall have an ampere rating of not less than that of the branch circuit. (ii) Two or more receptacles. Where connected to a branch circuit supplying two or more receptacles or outlets, receptacle ratings shall conform to the values listed in Table K-4. (iii) Receptacles used for the connection of motors. The rating of an attachment plug or receptacle used for cord- and plug-connection of a motor to a branch circuit shall not exceed 15 amperes at 125 volts or 10 amperes at 250 volts if individual overload protection is omitted. TABLE K-4—RECEPTACLE RATINGS FOR VARIOUS SIZE CIRCUITS (c) Outside conductors and lamps— (1) 600 volts, nominal, or less. Paragraphs (c)(1)(i) through (c)(1)(iv) of this section apply to branch circuit, feeder, and service conductors rated 600 volts, nominal,		

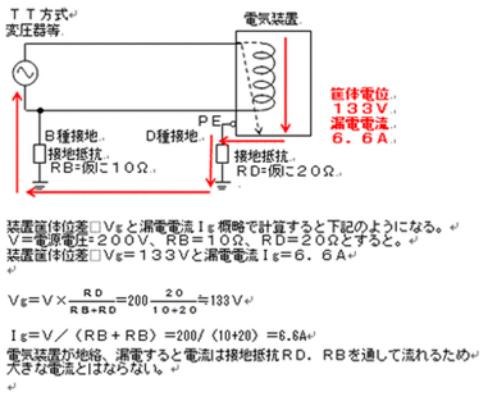
			or less and run outdoors as open conductors. (i) Conductors on poles. Conductors supported on poles shall provide a horizontal climbing space not less than the following: (A) Power conductors below communication conductors—30 inches (762 mm) . (B) Power conductors alone or above communication conductors: 300 volts or less—24 inches (610 mm); more than 300 volts—30 inches (762 mm). (C) Communication conductors below power conductors: with power conductors 300 volts or less—24 inches (610 mm); more than 300 volts—30 inches (762 mm). (ii) Clearance from ground. Open conductors shall conform to the following minimum clearances: (A) 10 feet (3.05 m)—above finished grade, sidewalks, or from any platform or projection from which they might be reached. (B) 12 feet (3.66 m)—over areas subject to vehicular traffic other than truck traffic. (C) 15 feet (4.57 m)—over areas other than those specified in paragraph (c)(1)(ii)(D) of this section that are subject to truck traffic. (D) 18 feet (5.49 m)—over public streets, alleys, roads, and driveways. (iii) Clearance from building openings. Conductors shall have a clearance of at least 3 feet (914 mm) from windows, doors, fire escapes, or similar locations. Conductors run above the top level of a window are considered to be out of reach from that window and, therefore, do not have to be 3 feet (914 mm) away. (iv) Clearance over roofs. Conductors above roof space accessible to employees on foot shall have a clearance from the highest point of the roof surface of not less than 8 feet (2.44 m) vertical clearance for insulated conductors, not less than 10 feet (3.05 m) vertical or diagonal clearance for covered conductors, and not less than 15 feet (4.57 m) for bare conductors, except that: (A) Where the roof space is also accessible to vehicular traffic, the vertical clearance shall not be less than 18 feet (5.49 m), or (B) Where the roof space is not normally accessible to employees on foot, fully insulated conductors shall have		

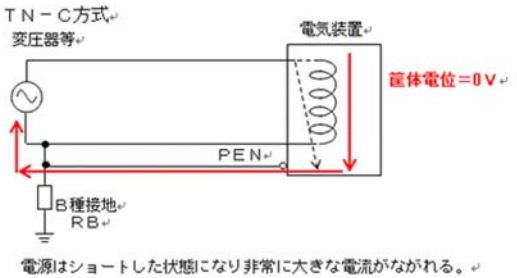
			a vertical or diagonal clearance of not less than 3 feet (914 mm), or (C) Where the voltage between conductors is 300 volts or less and the roof has a slope of not less than 4 inches (102 mm) in 12 inches (305 mm), the clearance from roofs shall be at least 3 feet (914 mm), or (D) Where the voltage between conductors is 300 volts or less and the conductors do not pass over more than 4 feet (1.22 m) of the overhang portion of the roof and they are terminated at a through-the-roof raceway or support, the clearance from roofs shall be at least 18 inches (457 mm). (2) Location of outdoor lamps. Lamps for outdoor lighting shall be located below all live conductors, transformers, or other electric equipment, unless such equipment is controlled by a disconnecting means that can be locked in the open position or unless adequate clearances or other safeguards are provided for relamping operations. (d) Services— (e) Overcurrent protection (f) Grounding. Paragraphs (f)(1) through (f)(11) of this section contain grounding requirements for systems, circuits, and equipment. (1) Systems to be grounded. The following systems which supply premises wiring shall be grounded: (i) Three-wire DC systems. All 3-wire DC systems shall have their neutral conductor grounded. (ii) Two-wire DC systems. Two-wire DC systems operating at over 50 volts through 300 volts between conductors shall be grounded unless they are rectifier-derived from an AC system complying with paragraphs (f)(1)(iii), (f)(1)(iv), and (f)(1)(v) of this section. (iii) AC circuits, less than 50 volts. AC circuits of less than 50 volts shall be grounded if they are installed as overhead conductors outside of buildings or if they are supplied by transformers and the transformer primary supply system is ungrounded or exceeds 150 volts to ground. (iv) AC systems, 50 volts to 1000 volts. AC systems of 50 volts to 1000 volts shall be grounded under any of the following conditions, unless exempted by paragraph (f)(1)(v) of this section:			

			(A) If the system can be so grounded that the maximum voltage to ground on the ungrounded conductors does not exceed 150 volts; (B) If the system is nominally rated 480Y/277 volt, 3-phase, 4-wire in which the neutral is used as a circuit conductor; (C) If the system is nominally rated 240/120 volt, 3-phase, 4-wire in which the midpoint of one phase is used as a circuit conductor; or (D) If a service conductor is uninsulated. (v) Exceptions. AC systems of 50 volts to 1000 volts are not required to be grounded if the system is separately derived and is supplied by a transformer that has a primary voltage rating less than 1000 volts, provided all of the following conditions are met: (A) The system is used exclusively for control circuits, (B) The conditions of maintenance and supervision assure that only qualified persons will service the installation, (C) Continuity of control power is required, and (D) Ground detectors are installed on the control system.			
B-4			OSHA 1926.407 § 1926.407 Hazardous (classified) locations. (a) Scope. This section sets forth requirements for electric equipment and wiring in locations which are classified depending on the properties of the flammable vapors, liquids or gases, or combustible dusts or fibers which may be present therein and the likelihood that a flammable or combustible concentration or quantity is present. Each room, section or area shall be considered individually in determining its classification. These hazardous (classified) locations are assigned six designations as follows: Class I, Division 1 Class I, Division 2 Class II, Division 1 Class II, Division 2 Class III, Division l Class III, Division 2 For definitions of these locations see			

			§1926.449. All applicable requirements in this subpart apply to all hazardous (classified) locations, unless modified by provisions of this section. (b) Electrical installations. § 1926.449 Definitions applicable to this subpart. The definitions given in this section apply to the terms used in subpart K. The definitions given here for "approved" and "qualified person" apply, instead of the definitions given in §1926.32, to the use of these terms in subpart K. Class I locations. Class I locations are those in which flammable gases or vapors are or may be present in the air in quantities sufficient to produce explosive or ignitible mixtures. Class I locations include the following: (a) Class I, Division 1. A Class I, Division 1 location is a location: (1) In which ignitible concentrations of flammable gases or vapors may exist under normal operating conditions; or			
B-5			**A. 出典：アジア諸国における雷保護・接地規格の現状** J. IEIE Jpn. Vol. 34 No. 9 電気設備学会誌 2014 年 9 月 https://www.jstage.jst.go.jp/article/ieiej/34/9/34_653/_pdf/-char/en 1)日本：我が国の接地は，グローバル規格である IEC 規格等と比較しても明確なように接地の概念が異なっている。 我が国では接地抵抗値を定めて異常な電位上昇による感電，火災，機器の損傷等の災害を防止してきた。 2)IEC 規格では，人体に危険な接触電圧が発生しないような接地システムを構築するという，理想的な技術を規定している。この接地システムのキーワードとして共用接地，等電位ボンディング技術がある。 3）韓国：低圧電気設備は既存の技術基準又は，IEC60364 規格に従って選択し，施工できる。米国 NFPA の NEC も検討の対象。 第 19 条（各種接地工事の細目）においては，前述した統合接地工事及び TN-C-S 接地方式の工事を行う場合，保護導体（PE）は，KS C IEC 60364-5-54 の規定によって施設できるようにし，危険な接触電圧が発生しないように等電位ボンディングを規定されている。 4)中国：②「民間用建築電気設計規格（Code for electrical design of civil buildings）」 JGJ16-2008 の第 7 章低圧配電 7.5，IEC 規格 接地方式，TN-C，TN-C-S，TN-S 等のメニューを提示。 5)アジア諸国：統治した国の規格が原規格になっている場合が多い。加えて，近年では IEC 規格や米国の NEC 規格を引用している **B. 出典：海外におけるアース線** https://blog.rittal.jp/856/ 1) アース線の役割と種類（海外設置版） 漏電による感電から人体を守ったり、定格以上の電流が流れたことによる破損や火災から機器を守ったりする役割を持つアース線。電気の安全に使用するためには欠かすことができないものですが、国によって規格や仕組みが少しずつ異なっているのも特徴です。海外におけるアースについて紹介します。 2) 海外におけるアース線		

		日本ではエアコンや洗濯機など一部の家電製品を除き、家庭のコンセントには通常、アース線は設置されていません。しかし海外では、一般家庭のコンセントにアース線がついている地域も多くあります。その理由には漏電を察知して電気を遮断する装置の違いのほか、一般家庭用コンセントの電圧の高さが挙げられます。日本では 100V が標準なのに対して、他のアジア諸国、ヨーロッパや中東などでは 200V～240V が一般的です。このような地域では、安全のためにすべてのコンセントにアース線用のコネクタが設置されていることがあります。 3) アース線の種類 日本と海外で設置されるアース線をみてみると、系統別に 3 種類に分けることができます。種類によってアースに対する考え方と、漏電を検知して電気を遮断するために使う装置が異なっています。 系統は 2 文字のアルファベットによって示されます。1 文字目は電源系統とアース（大地）へのつなぎ方、2 文字目は露出導電性部分（設備が故障したときに人への感電の恐れがある部分）とアース（大地）へのつなぎ方を表します。 (1) TN 接地系統 主に欧米で使われている方式で、雷サージに強いのが特長です。 電源系統のうち一か所を直接アースへと接続します。また露出導電性部分も、電源系統の接地部分と同じ場所に接地させます。TN 接地系統は、単相 3 線式という配電方法で用いられる中性線とのつなぎ方によって TN-C、TN-S 、TN-C-S の 3 種類に分類されます。TN-C は中性線とアースに使う保護導体を共有するもの。TN-S は中性線と保護導体が別になっているもの。そして TN-C-S は中性線の一部を保護導体として使用するものです。過電流保護機器を使用し、絶縁不良発生時には自動的に電源を遮断します。 (2) TT 接地系統 日本およびイタリアの一部で使用されている方式です。 電源系統のうち一か所を直接アースへと接続します。さらに露出導電性部分となる機器からの接地を、電源系統とは別に、独立してアースに接地させます。日本では分電盤の中にある漏電遮断器が電源系統の接地を、エアコンや洗濯機などから伸びる緑色のアース線が機器からの接地になります。 漏電遮断器を使用します。電源の遮断は、電源系統から露出導電性部分に絶縁不良が発生したときと、電源系統と接地の間に絶縁不良発生したときに自動的に行われます。 (3) IT 接地系統: 地域や国を問わず、特に漏電に対する安全性が求められる電源系統において使われる方式です。 電源系統も機器も、どの部分も接地されていません。電源系統を接地する場合には、大地との間に抵抗を入れます。心電図や脳波計のような医療機器、水中で使う照明やヒーター、特に安全性が求められる制御用の機器などで使われている方式です。 TN 方式や TT 方式と異なり、漏電が起こった際に自動的に電源を遮断する装置は使用しません。絶縁不良が発生したときはアラームを出して電源遮断を促す監視機器を使ったり、機器の内部に漏電保護機器が使用されていたりします。 (4) まとめ 国や地域によって、アース線に対する考え方や方法が大きく異なります。電気製品を輸入する際や、海外で使用する電気機器を設計する場合には、コンセントの形や電圧などの違いだけでなく、それぞれの国のアースの方式や考え方を事前に調べておく必要があります。 **C: 日本は漏電遮断器で欧米で過電流遮断器が基本。**ケーワイ設計 http://blog.livedoor.jp/iso12100/archives/25216320.html カテゴリ:配電方式遮断機 日本では地絡、漏電の保護は漏電遮断器が基本ですが、欧米では保護接地＋過電流遮断器が基本です。 これは電源受電設備の配電方式の違いによるものです。配電方式は大きく分類するとＴＴ方式、ＴＮ系方式、ＩＴ方式があります。 ＴＴ方式は日本で最も普及している方式で（Ｔ：送信側１点接地、Ｔ受信側１点接地）地絡漏電しても接地間の抵抗があるため大きな電流が流れないが、筐体と大地電位に電位差が発生する。 漏電時に筐体に人間が触れた場合、筐体と大地に電位差があるため電流が流れ感電する。以上の理由で日本では漏電遮断器の保護が基本になります。



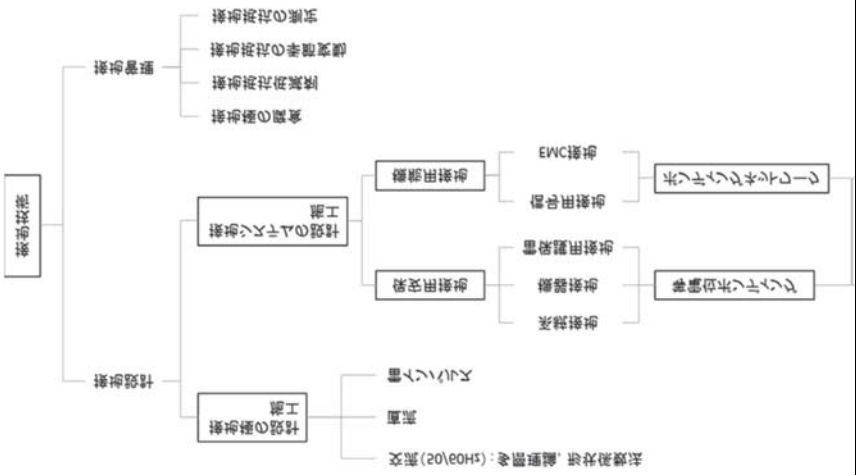


ＴＮ－Ｃ 方式欧米で普及している方式で（Ｔ：送信側１点接地、Ｎ：受信側を送信側の接地に直接接続する、Ｃ：中性線Ｎと接地線ＰＥを共通にして配電）
地絡漏電すると電源はショートした状態になり非常に大きな電流がながれる。漏電時に筐体に人間が触れた場合、筐体と大地に電位差が発生しないため感電しない。
装置内の等電位ボンディング（装置の板金、電気機器ＦＧすべてＰＥ導線と電位が等しくなるように接続）することが規格化されている。以上の理由で欧米では保護接地＋過電流遮断器の保護が基本になります。
D: 漏電の日本と海外における考え方の違い（ヒューズ・ブレーカー）－海外規格にも適応した電気設計 https://blog.rittal.jp/1089/
近年のグローバル化に伴い、国内だけでなく海外向け製品の電気設計に従事する機会も増えてきました。電気設計では人体保護の観点から、漏電や短絡・地絡対策が必要であり、海外向け製品では地域によって満たすべき要求に違いがあります。例えば、漏電に関しては、日本ではまず漏電しないように設計を行いますが、海外では漏電そのものを防ぐよりもアースによる地絡を徹底し、人への感電をなくすような設計が主流です。これを踏まえて、短絡・地絡における日本と海外の違いをご紹介します。
日本と海外で異なる漏電対策
電気設計をする際には、日本国内と海外で満たすべき規格と要求事項が異なるため、注意が必要です。ヨーロッパ諸国やアメリカでは、電気設計の前提として「機械は壊れるもの、人は間違いを犯すもの」という考え方があり、充電部は全てアースしてしまうことで、万が一の事故も防ぎます。日本の「漏電を防ぐことで万が一の際に重大事故となることを防ぐ」という設計も、一見安全そうに見えますが、漏電ブレーカーの遮断特性以下の漏電が看過されてしまう点において、考え方が大きく異なります。
日本と海外の違いとは？
海外では、確実な電路の遮断という観点から、ヒューズの使用が未だに根強く残っています。それに対して、日本国内では、ブレーカーの信頼性が向上したこともあり、交換が必要なヒューズよりもブレーカーを使用することが多くなっています。
しかし、日本国内で広く使用されるブレーカーの仕様は、ヨーロッパやアメリカでは感電保護として認められていません。日本国内規格の JIS と国際規格の IEC で接地に対する概念が異なるためです。日本では接地に対し抵抗値を設定することで、短絡・地絡による損傷などの災害を防止しています。一方で、IEC では人体に危険がおよぶ接触電圧が発生しないようなシステムを設計しています。
海外規格を把握しておくことは: 近年の海外製品の増加から、日本国内で設計をしていても海外規格に適応した電気設計を行う機会は多くあります。日本国内の規格を把握しておくことも当然重要ですが、海外の規格について認識しておくと、今後電気設計をする際に大きな武器になるはずです。まずは本記事をきっかけとして、短絡・地絡対策の海外規格について理解を深めてはいかがでしょうか？

E. 制御盤 海外規格 https://www.seigyobann.com/control_panels/kaigaikikaku.php
例えば感電保護機器。
国内で多く使用される漏電遮断器（30mA・100ms）を、欧米では感電保護として認めていません。日本国内で「この程度で大丈夫だろう」と設計した感電や火災、異常動作などへの防止措置が、欧米の規格では、不適合となるケースがあります。
F: 漏電遮断器 出典: フリー百科事典『ウィキペディア(Wikipedia)』
漏電遮断器 （ろうでんしゃだんき）または漏電ブレーカー（Earth Leakage Circuit Breaker : ELCB・ELB・ECB、Ground-Fault Circuit Interrupter : GFCI、Residual Current Circuit Breaker : RCCB、Residual Current Device : RCD）とは、漏電による漏れ電流を検出して回路を自動的に遮断する機能をもつ遮断器である。 通常の配線用遮断器が過負荷や短絡による過電流から回路を保護しているのに対し、漏電遮断器は地絡による感電を防止する目的で回路に設けられる。ただし、殆どの製品では過電流遮断機能が付いている。
G: 接 地 の 世 界 電 気 設 備 学 会 誌 2016 年 10 月
https://www.jstage.jst.go.jp/article/ieiej/36/10/36_736/_pdf/-char/en
英語圏ではアース，米語圏ではグランド　フランス語の Terre（接地）
接地を取るとか接地に落とすとかって，こういう表現でやってきましたよね。でも，これは IEC 規格では，ボンディングを施すことなんですよ。日本では，全て接地線，接地導体と言っておりますが，IEC 規格では，これを保護導体と言っていている。
H: データセンター向け低圧遮断器　富士時報　2012 Vol.85 No.2
https://www.fujielectric.co.jp/about/company/jihou_2012/pdf/85-02/FEJ-85-02-129-2012.pdf

表１　配電方式の比較(1)

配電方式	地絡電流	地絡保護方式	特　徴
TT配電	小	漏電遮断器	関連設備接地系で電位差が発生し，ノイズ発生の場合がある。
TN配電	大	過電流遮断器	等電位ボンディングによって基準電位を確保することにより電位差によるノイズが抑制が可能である。



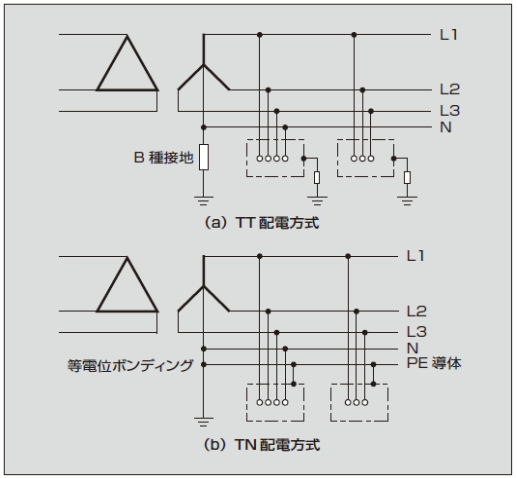


図 1　接地方式

B-6

接地系統の種類(TN, TT, IT系統)(JIS C 0364-3) http://www.acelion.co.jp/naibu/ent/syurui/syurui.htm

低圧の配電系統にはいくつかの種類があります。それぞれの系統ごとにSPD(アレスタ・避雷器)の組み合わせが異なるので、SPD(アレスタ・避雷器)を設置する際には配電系統を確認する必要があります。系統の種類は下図のとおりです。一般的に日本の配電系統はほとんどTT系統となっています。

またコードの意味は次のとおりです。

● 第一文字　電力系統と大地との関係

T＝一点を大地に直接接続する。

I＝全充電部を大地(接地)から絶縁するか、又は高インピーダンスを介して一点を大地に直接接続する。

● 第二文字　設備の露出導電性部分と大地との関係

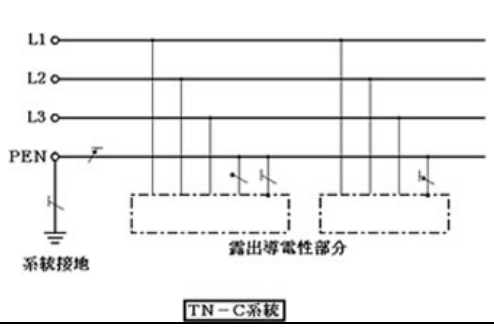
T＝電力系統の接地とは無関係に、露出導電性部分を大地に直接接地する。

N＝露出導電性部分を電力系統の接地点へ直接接続する。

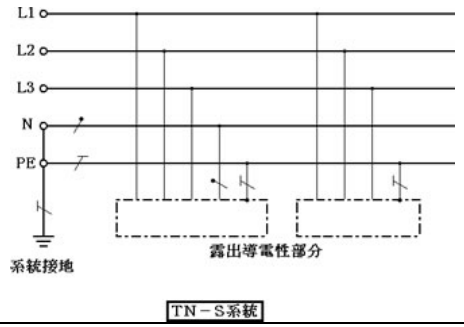
● その次の文字　中性線及び保護導体との措置

S＝保護導体の機能を中性線(又は接地側相)と別の導体で行う。

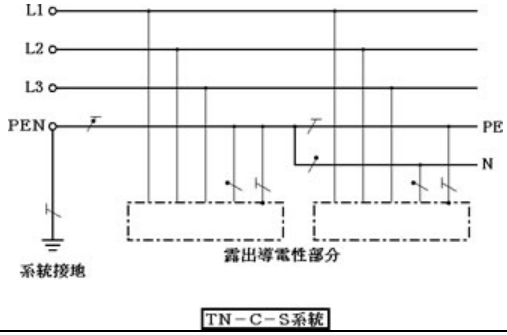
C＝中性線及び保護導体の機能を1本の導体で兼用する(PEN導体)



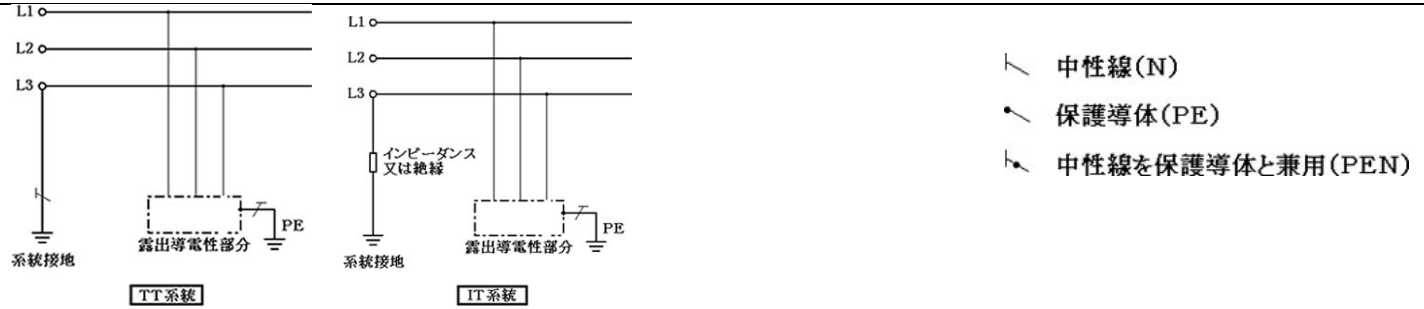
TN－C系統



TN－S系統



TN－C－S系統

		
B-7		https://jeea.or.jp/course/contents/10102/ 漏電遮断器とは、感電災害の多い電路や人が容易に触れやすい電路には労働安全衛生規則第３３３条（漏電による感電の防止）や電気設備技術基準の解釈第３６条で設置を義務づけている。 感電災害の防止を目的にした場合は、高感度高速形のものを選定しなければならない。使用にあたっては漏電遮断器を電路に設置しても電気機器の金属ケースには接地を施す必要がある。
B-8		電気設備の技術基準の解釈　https://www.meti.go.jp/policy/safety_security/industrial_safety/oshirase/2018/09/300928-4.pdf 電気設備に関する技術基準を定める省令（平成 9 年通商産業省令第 52 号。以下「省令」という。 【地絡遮断装置の施設】（省令第 15 条） 第 36 条 金属製外箱を有する使用電圧が 60V を超える低圧の機械器具に接続する電路には、電路に地絡を生じたときに自動的に電路を遮断する装置を施設すること。ただし、次の各号のいずれかに該当する場合はこの限りでない。 一 機械器具に簡易接触防護措置（金属製のものであって、防護措置を施す機械器具と電気的に接続するおそれがあるもので防護する方法を除く。）を施す場合 二 機械器具を次のいずれかの場所に施設する場合 イ 発電所又は変電所、開閉所若しくはこれらに準ずる場所 ロ 乾燥した場所 ハ 機械器具の対地電圧が 150V 以下の場合においては、水気のある場所以外の場所 三 機械器具が、次のいずれかに該当するものである場合 イ 電気用品安全法の適用を受ける 2 重絶縁構造のもの ロ ゴム、合成樹脂その他の絶縁物で被覆したもの ハ 誘導電動機の 2 次側電路に接続されるもの ニ 第 13 条第二号に掲げるもの 四 機械器具に施された C 種接地工事又は D 種接地工事の接地抵抗値が 3Ω以下の場合 五 電路の系統電源側に絶縁変圧器（機械器具側の線間電圧が 300V 以下のものに限る。）を施設するとともに、当該絶縁変圧器の機械器具側の電路を非接地とする場合 六 機械器具内に電気用品安全法の適用を受ける漏電遮断器を取り付け、かつ、電源引出部が損傷を受けるおそれがないように施設する場合 七 機械器具を太陽電池モジュールに接続する直流電路に施設し、かつ、当該電路が次に適合する場合 イ 直流電路は、非接地であること。

		ロ 直流電路に接続する逆変換装置の交流側に絶縁変圧器を施設すること。 ハ 直流電路の対地電圧は、450V 以下であること。 八 電路が、管灯回路である場合
B-9		http://www.safetyeng.co.jp/glossary/link.php?txt=%E6%BC%8F%E9%9B%BB%E9%81%AE%E6%96%AD%E5%99%A8　　森山技術士事務所 漏電遮断器 　Circuit-breakers incorporating residual current protection 交流 600V 以下の低圧屋内電路における感電と火災防止に用いられるモールドケースの遮断器。定格感度電流には、高感度型（30mA, 15mA)と 100mA, 200mA, 500mA がある。 米国では“Ground Fault Circuit Interrupter”、英国では“Redidual current-operated circuit-breakers”と呼ぶ。 国内で使用される ELB は Eearth Leakage circuit Breaker の頭文字であるが和製英語らしい。 **IEC 60204**-1, 15.1 NOTE2 では residual current protective devices (RCDs), JIS B9960-1 では漏電保護装置、漏電電流保護装置（RCD）とされている。

添付-2 参考書類 7.6.1 Blasting Noise

No.	国	参考書類
B-1	香港	Materials and Workmanship, Specification for Civil Engineering Works D/MTRC/NW/CIV/M & W /003/A2 SECTION 25 BLASTING, Blasting Noise 25.12 Noise arising from blasting, when measured at any locations open to the public, shall not exceed a sound pressure level of 85 dBA and/or a peak sound level of 110 dB.
B-2	日本	**特定建設作業に伴つて発生する騒音の規制に関する基準** https://www.env.go.jp/hourei/07/000050.html 特定建設作業に伴つて発生する騒音の規制に関する基準 公布日:昭和 43 年 11 月 27 日 厚生省・建設省告示 1 号 改正 平成 27 年 4 月 20 日 環境省告示第 66 号. 騒音規制法(昭和四十三年法律第九十八号)第十四条第一項及び第十五条第一項の規定に基づき、特定建設作業に伴つて発生する騒音の規制に関する基準を次のように定め、昭和四十三年十二月一日から適用する。. 特定建設作業に伴つて発生する騒音の規制に関する基準. 騒音規制法(昭和四十三年法律第九十八号。以下「法」という。)第十五条第一項の規定に基づき、環境大臣の定める基準は、次のとおりとする。ただし、この基準は、第一号の基準を超える大きさの騒音を発生する特定建設作業について法第十五条第一項の規定による勧告又は同条第二項の規定による命令を行うに当たり、第三号本文の規定にかかわらず、一日における作業時間を同号に定める時間未満四時間以上の間において短縮させることを妨げるものではない。. 一 特定建設作業の騒音が、特定建設作業の場所の敷地の境界線において、八十五デジベルを超える大きさのものでないこと。. 二 特定建設作業の騒音が、別表の第一号に掲げる区域にあつては午後七時から翌日の午前七時までの時間内、別表の第二号に掲げる区域にあつては午後十時から翌日の午前六時までの時間内において行われる特定建設作業に伴つて発生するものでないこと。ただし、災害その他非常の事態の発生により当該特定建設作業を緊急に行う必要がある場合、人の生命又は身体に対する危険を防止するため特に当該特定建設作業を行う必要がある場合、鉄道又は軌道の正常な運行を確保するため特にこの号本文に掲げる時間(以下「夜間」という。)において当該特定建設作業を行う必要がある場合、道路法(昭和二十七年法律第百八十号)第三十四条の規定に基づき、道路の占用の許可に当該特定建設作業を夜間に行うべき旨の条件が付された場合及び同法第三十五条の規定に基づく協議において当該特定建設作業を夜間に行うべきことと同意された場合並びに道路交通法(昭和三十五年法律第百五号)第七十七条第三項の規定に基づき、道路の使用の許可に当該特定建設作業を夜間に行うべき旨の条件が付された場合及び同法第八十条第一項の規定に基づく協議において当該特定建設作業を夜間に行うべきこととされた場合における当該特定建設作業に係る騒音は、この限りでないこと。. 三 特定建設作業の騒音が、当該特定建設作業の場所において、別表の第一号に掲げる区域にあつては一日十時間、別表の第二号に掲げる区域にあつては一日十四時間を超えて行われる特定建設作業に伴つて発生するものでないこと。ただし、当該特定建設作業がその作業を開始した日に終わる場合、災害その他非常の事態の発生により当該特定建設作業を緊急に行う必要がある場合及び人の生命又は身体に対する危険を防止するため特に当該特定建設作業を行う必要がある場合における当該特定建設作業に係る騒音は、この限りでないこと。. 四 特定建設作業の騒音が、特定建設作業の全部又は一部に係る作業の期間が当該特定建設作業の場所において連続して六日を超えて行われる特定建設作業に伴つて発生するものでないこと。ただし、災害その他非常の事態の発生により当該特定建設作業を緊急に行う必要がある場合及び人の生命又は身体に対する危険を防止するため特に当該特定建設作業を行う必要がある場合における当該特定建設作業に係る騒音は、この限りでないこと。. 五 特定建設作業の騒音が、日曜日その他の休日に行われる特定建設作業に伴つて発生するものでないこと。ただし、災害その他非常の事態の発生により当該特定建設作業を緊急に行う必要がある場合、人の生命又は身体に対する危険を防止するため特に当該特定建設作業を行う必要がある場合、鉄道又は軌道の正常な運行を確保するため特に当該特定建設作業を日曜日その他の休日に行う必要がある場合、電気事業法施行規則(昭和四十年通商産業省令第五十一号)第一条第二項第一号に規定する変電所の変更の工事として行う特定建設作業であつて当該特定建設作業を行う場所に近接する電気工作物の機能を停止させて行わなければ当該特定建設作業に従事する者の生命又は身体に対する安全が確保できないため特に当該特定建設作業を日曜日その他の休日に行う必要がある場合、道路法第三十四条の規定に基づき、道路の占用の許可に当該特定建設作業を日曜日その他の休日に行うべき旨の条件が付された場合及び同法第三十五条の規定に基づく協議において当該特定建設作業を日曜日その他の休日に行うべきことと同意された場合並びに道路交通法第七十七条第三項の規定に基づき、道路の使用の許可に当該特定建設作業を日曜日その他の休日に行うべき旨の条件を付された場合及び同法第八十条第一項の規定に基づく協議において当該特定建設作業を日曜日その他の休日に行うべきこととされた場合における当該特定建設作業に係る騒音は、この限りでないこと。. 備考. 1 デシベルとは、計量法(平成四年法律第五十一号)別表第二に定める音圧レベルの計量単位をいう。.

		2 騒音の測定は、計量法第七十一条の条件に合格した騒音計を用いて行うものとする。この場合において、周波数補正回路はA特性を、動特性は速い動特性(FAST)を用いることとする。. 3 騒音の測定方法は、当分の間、日本工業規格Z八七三一に定める騒音レベル測定方法によるものとし、騒音の大きさの決定は、次のとおりとする。 (一) 騒音計の指示値が変動せず、又は変動が少ない場合は、その指示値とする。. (二) 騒音計の指示値が周期的又は間欠的に変動し、その指示値の最大値がおおむね一定の場合は、その変動ごとの指示値の最大値の平均値とする。. (三) 騒音計の指示値が不規則かつ大幅に変動する場合は、測定値の九十パーセントレンジの上端の数値とする。. (四) 騒音計の指示値が周期的又は間欠的に変動し、その指示値の最大値が一定でない場合は、その変動ごとの指示値の最大値の九十パーセントレンジの上端の数値とする。. 別表. (昭四六厚建告一・追加、昭六一環庁告一二・昭六三環庁告六五・平三環庁告五・平五環庁告九一・平一〇環庁告四一・平一二環庁告一六・平一三環省告九・平一八環省告一三二・平二四環省告五三・平二七環省告六六・一部改正). 一 法第三条第一項の規定により指定された地域のうち、次のいずれかに該当する区域として都道府県知事(市の区域内の区域については、市長。)が指定した区域 イ 良好な住居の環境を保全するため、特に静穏の保持を必要とする区域であること。. ロ 住居の用に供されているため、静穏の保持を必要とする区域であること。. ハ 住居の用に併せて商業、工業等の用に供されている区域であつて、相当数の住居が集合しているため、騒音の発生を防止する必要がある区域であること。. ニ 学校教育法(昭和二十二年法律第二十六号)第一条に規定する学校、児童福祉法(昭和二十二年法律第百六十四号)第七条第一項に規定する保育所、医療法(昭和二十三年法律第二百五号)第一条の五第一項に規定する病院及び同条第二項に規定する診療所のうち患者を入院させるための施設を有するもの、図書館法(昭和二十五年法律第百十八号)第二条第一項に規定する図書館、老人福祉法(昭和三十八年法律第百三十三号)第五条の三に規定する特別養護老人ホーム並びに就学前の子供に関する教育、保育等の総合的な提供の推進に関する法律(平成十八年法律第七十七号)第二条第七項に規定する幼保連携型認定こども園の敷地の周囲おおむね八十メートルの区域内であること。. 二 法第三条第一項の規定により指定された地域のうち、前号に掲げる区域以外の区域.
B-3	日本	静岡県生活環境保全条例 http://www.city.fujinomiya.lg.jp/sp/entrepreneur/llti2b000000rwwv-att/llti2b000000v9hb.pdf https://www.town.mitake.lg.jp/wp-content/uploads/specific-building.pdf 特定建設作業とは… 特定建設作業とは、建設工事として行われる作業のうち、著しい騒音又は振動を発生する作業であって、政令で定められているものです。特定建設作業を行う場合には、当該作業の開始日の７日前までに各市町村に届出が必要となります。ただし、当該作業が開始日に完了するものついては、届出は不要です。

<table>
<tr>
<td></td>
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<td>
特定建設作業の規制
騒　音
特定建設作業（法第2条関係）
建設工事として行われる作業のうち、著しい騒音を発生する作業であって騒音規制法施行令の別表第2に掲げる作業。（ただし、当該作業がその作業を開始した日に終わるもの（深夜12時をまたぐものは除く。）は除く。）
「騒音に係わる特定建設作業一覧表」参照
規制基準（法第15条関係）
「特定建設作業に伴って発生する騒音の規制に関する基準（昭和46年11月27日厚生省・建設省告示第1号）」に下記のとおり定められている。（「騒音・振動関係県告示集〔平成9年3月28日告示第344号の6〕」参照）
<table>
<tr><td>基準値
（敷地境界線における基準）</td><td>一号区域
二号区域</td><td>85デシベルを超えないこと</td></tr>
<tr><td>作業時間※</td><td>一号区域
二号区域</td><td>午後7時から翌日の午前7時までは禁止
午後10時から翌日の午前6時までは禁止</td></tr>
<tr><td>一日の作業時間※</td><td>一号区域
二号区域</td><td>10時間を超えないこと
14時間を超えないこと</td></tr>
<tr><td>作業期間※</td><td>一号区域
二号区域</td><td>連続して6日間を超えないこと</td></tr>
<tr><td>日曜日その他の休日※</td><td>一号区域
二号区域</td><td>禁止</td></tr>
<tr><td colspan="3">一号区域･･･第1種区域、第2種区域、第3種区域に加えて、第4種区域のうち学校、病院等の施設の周囲おおむね80mの区域
二号地域･･･第4種区域のうち、一号区域を除く区域
※災害等により特定建設作業を緊急に行う必要がある場合などは除く。</td></tr>
</table>
特定建設作業の種類
・騒音（騒音規制法第２条、施行令第２条　別表第２）
<table>
<tr><td>1</td><td>くい打機（もんけんを除く。）、くい抜機又はくい打くい抜機（圧入式くい打くい抜機を除く。）を使用する作業（くい打機をアースオーガーと併用する作業を除く。）</td></tr>
<tr><td>2</td><td>びょう打機を使用する作業</td></tr>
<tr><td>3</td><td>さく岩機を使用する作業（作業地点が連続的に移動する作業にあっては、１日における当該作業に係る２地点間の最大距離が 50 メートルを超えない作業に限る。）</td></tr>
<tr><td>4</td><td>空気圧縮機（電動機以外の原動機を用いるものであって、その原動機の定格出力が 15 キロワット以上のものに限る。）を使用する作業（さく岩機の動力として使用する作業を除く。）</td></tr>
<tr><td>5</td><td>コンクリートプラント（混練機の混練容量が 0.45 立方メートル以上のものに限る。）又はアスファルトプラント（混練機の混練重量が 200 キログラム以上のものに限る。）を設けて行う作業（モルタルを製造するためにコンクリートプラントを設けて行う作業を除く。）</td></tr>
<tr><td>6</td><td>バックホウ（一定の限界を超える大きさの騒音を発生しないものとして環境大臣が指定するもの（※）を除き、原動機の定格出力が 80 キロワット以上のものに限る。）を使用する作業</td></tr>
<tr><td>7</td><td>トラクターショベル（一定の限界を超える大きさの騒音を発生しないものとして環境大臣が指定するもの（※）を除き、原動機の定格出力が 70 キロワット以上のものに限る。）を使用する作業</td></tr>
<tr><td>8</td><td>ブルドーザー（一定の限界を超える大きさの騒音を発生しないものとして環境大臣が指定するもの（※）を除き、原動機の定格出力が 40 キロワット以上のものに限る。）を使用する作業</td></tr>
</table>
※「一定の限界を超える大きさの騒音を発生しないものとして環境大臣が指定するもの」については、国土交通省ホームページ（下記 URL）に機械一覧が掲載されております。
（URL：http://www.mlit.go.jp/sogoseisaku/constplan/sosei_constplan_tk_000003.html）
</td>
</tr>
<tr>
<td>B-4</td>
<td>日本</td>
<td>国交省：建設工事に伴う騒音振動対策技術指針　https://www.mlit.go.jp/sogoseisaku/constplan/sosei_constplan_fr_000005.html
第8章　岩石掘削工　（岩石掘削の計画）
1.岩石掘削の計画にあっては，リッパ工法，発破リッパ工法，発破工法等の工法について比較検討し，総体的に騒音，振動の影響が小さい工法を採用しなければならない。
（せん孔）
2.さく岩機によりせん孔を行う場合，必要に応じ防音対策を講じた機械の使用について検討するものとする。
（発　破）
3.発破掘削を行う場合，必要に応じ低爆速火薬等の特殊火薬や，遅発電気雷管等の使用について検討するものとする。</td>
</tr>
<tr>
<td>B-5</td>
<td>日本</td>
<td>14.　建設工事に伴う騒音振動対策技術指針　https://www.city.chiba.jp/kensetsu/doboku/gijutsukanri/documents/14.pdf
(発　破)
３．発破に伴う騒音、振動を低減するためには、１段の薬量を制限して(その代り孔数を多くして)段発させたり、爆速の低い火薬(またはコンクリート破砕器)を用いたりするのが効果的である。この際、発破の規模、回数、時間帯等について検討しておく必要がある。
第 15 章　トンネル工</td>
</tr>
</table>

(掘削工)

１．坑口付近の掘削は、発破等の騒音、振動をできる限り低減させるように配慮しなければならない。

（1）建設工事に伴う騒音

建設工事のうち著しい騒音を発生する作業であって、政令で定めるものを「特定建設作業」といい、都道府県知事の指定する地域の中で、特定建設作業を伴う建設工事を施工しようとする者に対して実施の届出を義務づけている。

（イ）規制に関する基準

特定建設作業にかかる規制に関する基準は次表のとおりである。

規制種別 ＼ 特定建設作業 ／ 地域の区分		くい打機 くい抜機 くい打くい抜機	びょう打機	さく岩機	空気圧縮機	コンクリートプラント アスファルトプラント
騒音の大きさ	①②	85ホンを超えないこと				
作業時間	①	午後７時～午後７時の時間内でないこと				
	②	午後10時～午前６時の時間内でないこと				
＊1日当たりの作業時間	①	10時間/日を超えないこと				
	②	14時間/日を超えないこと				
作業期間	①②	連続６日を超えないこと				
作 業 日	①②	日曜その他の休日でないこと				

（注）１．騒音の大きさは、特定建設作業の場所の敷地の境界線における値である。

２．騒音の大きさが基準値を超えている場合には、＊に定める時間未満４時間以上の範囲で１日の作業時間を短縮させることを勧告または命令ができる。

なお、さく岩機を使用する作業で、コンクリート圧砕機、静的破砕剤等の低騒音工法を併用する場合には、この４時間以上は６時間以上と解する。

（備　考）

１．地域の区分で、①（第１号区域）とは、指定地域のうち概ね都市計画法の用途地域の区分で、第１種住居専用地域、第２種住居専用地域、住居地域、近隣商業・商業・準工業地域であって相当数の住居が集合している地域、及び学校・病院等敷地の周囲の概ね80mの区域が該当する。②（第２号区域）とは、第１号区域以外の指定地域である。

２．騒音の大きさ以外の基準については、適用除外（災害時等の場合）の規定がある。

３．規制基準は禁止事項ではなく、基準に適合しないことによりその特定建設作業の場所の周辺の生活環境が著しく損なわれると認められる場合の、改善勧告の発動の要件である。

４．この規制に関する基準には適用除外が別表のとおり定められている。

B-6	日本	発破事例集　http://www.jes.or.jp/shiryo/blastings.pdf

3．発破音の管理値について

3.1 発破音による影響と公害の種類

(1) 騒音による影響

一般的な騒音の中で、音圧レベルによる人体や物に与える影響を表 2-2 に示す。また、騒音が動物に与える影響の報告例を表 2-3 に示す。※6

表 2-2　音圧レベルによる影響例と発生源例

音圧レベル(dB)	影 響 の 程 度	音圧レベルの発生源例
169	窓ガラスを破損することがある	衝撃波
150	瞬時に聴覚を失う(鼓膜の損傷)	ジェット機の爆音，衝撃音
140		
130	耳が痛く、痛感を受ける	
120		削岩機
110	0.5 時間/日で聴力障害(米国)	自動車の警笛(2m)
100	長時間にて難聴	電車が通るガード下
90		電車の中、工場、交叉点
80	人体の外的損傷について安全域	電気洗濯機、蛾の声、大声の会話
70		
60	睡眠妨害(商業地域)	普通の会話
50		静かな事務所
40	気にならないレベル	コオロギの最大音
30		
20		ささやき声
10		両耳で聞こえる限界

表 2-6　騒音評価量における用語の意味

騒音評価量の種類	用 語 の 意 味
等価騒音レベル［L_{Aeq}］	騒音レベルが時間とともに変化する場合、測定時間内でこれと等しい平均二乗音圧を与える連続定常音の騒音レベル。
単発騒音暴露レベル［L_{AE}］	単発的に発生する騒音の１回の発生ごとにA特性で重み付けられるエネルギーと等しいエネルギーを持つ継続時間１秒の定常音の騒音レベル。
時間率騒音レベル［L_x］	騒音レベルがあるレベル以上である時間が実測時間 x%を占める場合、そのレベルを x パーセント時間率騒音レベルという。 ・50 パーセント時間率騒音レベル L_{50}：中央値 ・ 5 パーセント時間率騒音レベル L_5 ：90 パーセントレンジの上端値 ・95 パーセント時間率騒音レベル L_{95}：90 パーセントレンジの下端値
FAST，SLOW	騒音計の音圧の実効値を求める回路は、速い動特性と遅い動特性を備えており、速い動特性を F 又は FAST、遅い動特性を S 又は SLOW とする。

3.2 発破音の管理値について

(1) 騒音の基準値※9

日本の国レベルで用いられている騒音の種類と騒音評価量の主なものを表 2-5 に示す。また、表 2-5 における騒音評価量の用語の意味を表 2-6 に示す。

騒音規制法の公示により、特定建設工事作業の騒音は、その敷地の境界線において 85dB を超えない大きさであることと定められている。しかし、これは定常的に発生する音について規制されたものであり、発破音について適用することについては疑問があるとされている。

表 2-5　騒音源と騒音評価量(日本)

音　源	基準種類	騒音評価量	単位	基準値	備　考
工場騒音	規制値	90%レンジ上端値 (L_5)他	dB	昼：45～50 注1 夜：40～45	騒音レベルが大幅に不規則に変動のとき他 FAST
建設騒音	規制値	ピークの L_5他	dB	85 以下 注2	騒音レベルが間欠的で一定でないとき他 FAST
自動車騒音	環境基準	中央値(L_{50})	dB	昼：70 以下 注3 夜：55 以下	FAST でサンプリング 例：5 秒 50 回法
新幹線鉄道騒音	環境基準	ピーク・パワー平均	dB	Ⅰ：70 以下 注4 Ⅱ：75 以下	SLOW 20 本の上位半分
航空機騒音(民間空港)	環境基準	WECPNL	dB	Ⅰ：70 以下 Ⅱ：75 以下	SLOW ピーク・パワー平均 時間帯別機数を考慮

注１：工場騒音の基準値は、第１種区域（第１種・第２種低層住居専用地域）での基準値
注２：特定建設作業において、特定建設作業場所の敷地の境界線における基準
注３：A地域（住居の用に供される地域）のうち２車線を有する道路に面する地域の基準値
注４：Ⅰは第１種区域、Ⅱは第２種区域における基準値を示す。

B-7	日本	環境 Q&A　http://www.eic.or.jp/qa/?act=view&serial=37405 Re:発破騒音　2011-08-18 13:25:14 >発破作業に伴って発生する騒音の規制基準について教えてください。　>（発破作業は騒音規制法の特定建設作業に該当するのでしょうか？） 騒音規制法の「特定建設作業」は騒音規制法施行令の別表第二に定められています。その中に「発破作業」に関連しそうなものは見当りません。 しかしながら、発破（火薬を用いた爆破）作業を行なうには火薬類取締法第２５条１項に基づき、都道府県知事の事前許可が必要になります。 また、同法同条２項において「都道府県知事は、（中略）その爆発又は燃焼が公共の安全の維持に支障を及ぼす虞があると認めるときは、前項の許可をしてはならない。」

		となっておりますので、騒音による被害が予想される場合は、許可は下りないと思います。
B-8	英国	BS 5607　Code of practice for the safe use of explosives in the construction industry 7 Method statement　7.2 Preparation p) the positioning and recording of environmental impact measurements, for example, ground vibration and air overpressure;
B-9	英国	HSE　OC 634/8　https://www.hse.gov.uk/foi/internalops/ocs/600-699/oc634_8.htm Control of dust and noise exposure during direct pressure blasting:　Direct pressure blasting The first action level is a daily personal exposure to noise of 85 dB(A) and the second level is a daily personal exposure to noise of 90 dB(A). Others working in the vicinity of blasting operations 8 Fortunately, the nature of the process generally keeps other people at a safe distance from such operations, and directly transmitted noise from blasting is not normally a major problem. The high frequency noise generated is often controlled by distance and by naturally occurring barriers such as the dock side or ship's hull. Problems may arise from poor selection of ventilating fans or shot recovery systems. Roots blowers on recovery systems can create extensive noise affected zones, and if used will require effective noise control measures to be taken.
B-10	英国	HSE　Noise at work　Guidance for employers on the Control of Noise at Work　Regulations 2005　https://www.mutesoundproofing.com/wp-content/uploads/2010/07/Noise%20at%20Work%20Regulations.pdf How is noise measured? Noise is measured in decibels (dB). An 'A-weighting' sometimes written as 'dB(A)', is used to measure average noise levels, and a 'C-weighting' or 'dB(C)', to measure peak, impact or explosive noises. upper exposure action values: - daily or weekly exposure of 85 dB; - peak sound pressure of 137 dB. The actions you need to take are described in the rest of this leaflet. Figure 2 will also help you decide what you need to do. There are also levels of noise exposure which must not be exceeded: exposure limit values: - daily or weekly exposure of 87 dB; - peak sound pressure of 140 dB. These exposure limit values take account of any reduction in exposure provided by hearing protection. □ The lower exposure action value is a daily or weekly average noise exposure level of 80 dB or a peak exposure value of 135 db, at which the Manager has to provide information and training and make hearing protection available □ The upper exposure action value is set at a daily or weekly average noise exposure of 85 dB, or a peak exposure value of 137 db above which the Manager is required to take reasonably practicable measures to reduce noise exposure, such as engineering controls or other technical measures. The use of hearing protection is also mandatory if the noise cannot be controlled by these measures, or while these measures are being planned or carried out □ Finally there is an exposure limit value of 87 dB, above which no worker shall be exposed (taking hearing protection into account)
B-11	米国	§ 1926.52　Occupational noise exposure. (a) Protection against the effects of noise exposure shall be provided when the sound levels exceed those shown in Table D-2 of this section when measured on the A-scale of a standard sound level meter at slow response. (b) When employees are subjected to sound levels exceeding those listed in Table D-2 of this section, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound levels within the levels of the table, personal protective equipment as required in subpart E, shall be provided and

		used to reduce sound levels within the levels of the table. (c) If the variations in noise level involve maxima at intervals of 1 second or less, it is to be considered continuous. (d)(1) In all cases where the sound levels exceed the values shown herein, a continuing, effective hearing conservation program shall be administered. TABLE D-2—PERMISSIBLE NOISE EXPOSURES Duration per day, hours Sound level dBA slow response 8 90 6 92 4 95 3 97 2 100 1½ 102 1 105 ½ 110 ¼ or less 115 (2)(i) When the daily noise exposure is composed of two or more periods of noise exposure of different levels, their combined effect should be considered, rather than the individual effect of each. Exposure to different levels for various periods of time shall be computed according to the formula set forth in paragraph (d)(2)(ii) of this section. (ii) Fe = (T1/L1) + (T2/L2) + · · · + (Tn/Ln) Where: Fe = The equivalent noise exposure factor. T = The period of noise exposure at any essentially constant level. L = The duration of the permissible noise exposure at the constant level (from Table D-2). If the value of Fe exceeds unity (1) the exposure exceeds permissible levels. (iii) A sample computation showing an application of the formula in paragraph (d)(2)(ii) of this section is as follows. An employee is exposed at these levels for these periods: 110 db A ¼ hour. 100 db A ½ hour. 90 db A 1½ hours. Fe = (¼ / ½) + (½ /2) + (1½ /8) Fe = 0.500 + 0.25 + 0.188 Fe = 0.938 Since the value of Fe does not exceed unity, the exposure is within permissible limits. (e) Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level.
B-12	米国	**§1910.95 Occupational noise exposure.** (b)(2) TABLE G-16—PERMISSIBLE NOISE EXPOSURES Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level. (d) *Monitoring*. (1) When information indicates that any employee's exposure may equal or exceed an 8-hour time-weighted average of 85 decibels, the employer shall develop and implement a monitoring program. (2)(i) All continuous, intermittent and impulsive sound levels from 80 decibels to 130 decibels shall be integrated into the noise measurements.

★for item 2

- GC の 1.4 条は Governing Law についての記載で”the law of the country or other jurisdiction stated in the Contract Data” 契約の Governing Law(Applicable law)を CD に記載することを規定している。
- 一方、JSSS の中で Laws of the Country は以下のような用法で用いられており、これは契約の Governing law とは必ずしも一致しない。
  The HSO shall possess appropriate educational qualification for such position and (if so required by the Laws of the Country)....(JSSS 1.12.1 (7))
- Laws も Country も FIDIC における定義語であり、Laws of the Country はおのずから定まった意味を持ってくる（事業地における法律)。すると、ここで問題になっている JSSS1.2.2（2）の文章の下記下線部は矛盾していないだろうか？
  References to “Laws of the Country” shall include all safety standards under such Laws and **shall also include references to Laws of any other jurisdiction** that may be stated in the Contract Data.
- JSSS1.2.2(2)の最も中核的な趣旨が「FIDIC における Laws の定義には safety standards までは言及されていないので、念のため Laws of the Country にはその国の safety standards が含まれる（と解釈される）ということを明記しておく」ということならば、文章の後段部を切って、下記の通りとすることが適当。
  Any reference in JSSS to “Laws of the Country” shall be deemed to include all safety standards under such Laws.(JSSS 1.2.2（5）の Site に関する事項と同様の記述とする）

★for item No. 32

●騒音レベル（A 特性音圧レベル）の単位は、分かりやすく表記するため、dBA または dB（A）が多用されてきましたが、現在の国内外の規格（JIS や IEC）あるいは計量法では、音圧レベルも騒音レベル使用して良い単位は“dB”であり、正式表記の場合はそうした上で、必要な箇所には「量の種類は、Lp（音圧レベル)、LA（騒音レベル）などを明記することになります。

●A 特性・B 特性・C 特性

「音圧レベルの測定を行うとき、各周波数に対してフラットに測定を行った結果が C 特性。それを、人間の聴覚が周波数によって異なる（例えば低周波数の音は聞こえにくい）性質を考慮し、補正を行ったものが A 特性および B 特性。A 特性が最も聴感に近いので、この値を一般に騒音レベルとよぶ。」そうです。

スペックにある 85-130dB の場合はこの A 特性の dB であり、140dB の場合は C 特性の dB のはずです。

(a) The Contractor shall implement a hearing protection and conservation program whereby noise exposure levels are monitored in order to accurately identify any Contractor’s Personnel that are exposed to noise at or above 90

dB averaged over 8 working hours, or an 8-hour time TWA;

(b) Further to JSSS 2.1.4 the Contractor shall comply with OSHA 1910.95 [Occupational noise exposure], in respect of exposure to impulsive or impact noise;

(c) Exposure to impulsive or impact noise shall not exceed 140 dB peak sound pressure level; and

(d) The Contractor shall monitor all workers whose noise exposure is equivalent to or greater than a noise exposure received in eight (8) hours where the noise level is constantly 85 dB. The exposure measurement must include all continuous, intermittent, and impulsive noise within an 80 dB to 130 dB range and must be taken during a typical work situation. The Contractor shall choose the monitoring method that best suits each individual situation.

コメントの追加 [SS1]: No. 31

特性が違うことは多くの国で共通（85 が 90 だったり、140 が 130 だったりという違いはあり）です。

一例として、GENERAL EHS GUIDELINES: OCCUPATIONAL HEALTH AND SAFETY, IFC(世銀の環境社会フレームの一部　Environment Health and Safety（EHS）ガイドライン、数値の出典は、ACGIH(アメリカ産業衛生専門官会議))
No employee should be exposed to a noise level greater than 85 dB(A) for a duration of more than 8 hours per day without hearing protection. In addition, no unprotected ear should be exposed to a peak sound pressure level (instantaneous) of more than 140 dB(C).

OSHA でも本文は dB ですが、図表では dBA で表記をしています(日本も同様、環境基準の法令は「デシベル」表記ですが、図表等で A 特性で測定する旨の注記あり)し、世親では特性もいれた dB(A)のような表記であることから、厳密な dB 表記にこだわる必要はないと思います。（いずれにせよ特性の明記は必要になります）

★for item No. 42
2.7.5 は下記の通り修文したい。

2.7.5 Measures for Lightning

(1) Where there is any risk that lightning may affect work on or near tall objects, or near explosive or conductive metals, ~~T~~the Contractor should recognise lightning as an occupational hazard and take precautions to prevent exposure of all Contractor's Personnel thereto.

(2) Before commencing any outdoor work, the HSO shall ensure that local weather forecasts have been checked and wherever necessary and possible, that work has

been rescheduled to avoid Contractor's Personnel~~workers~~ being caught ~~outside~~ in hazardous weather conditions.

(3) When working outdoors, Operation Leaders and workers shall continuously monitor weather conditions so that wherever possible they remain aware of the likelihood of thunderstorms.

(4) The HSO shall identify and inform workers of buildings to be used for shelter when ~~heard~~ thunder is heard or lightning is observed. Such shelters shall be fully enclosed, substantial and preferably shall have earthed electrical wiring and plumbing. Contractor's Personnel~~Workers~~ shall remain in shelters for at least 30 minutes after hearing the last noise of thunder.

(5) If suitable buildings are not immediately available, Contractor's Personnel~~workers~~ shall be instructed to shelter in enclosed rubber-tyre vehicles with windows closed and to remain there for at least 30 minutes after hearing the last noise of thunder. Tracked excavators, cranes or similar types of Contractor's Equipment shall not be used.

(6) The Safety Plan shall include lightning safety procedures which shall:

(a) Inform of all required actions when thunder is heard, lightning is seen~~personnel hear thunder or see lightning~~, or perceive other signs of approaching thunderstorms is observed;

(b) Indicate how information is to be disseminated amongst personnel on the Site;

(c) Identify locations and requirements for safe shelters;

(d) Indicate response times necessary for all personnel to reach safe shelters; and

(e) Specify methods to determine when to stop and resume affected work activities.

(7) The Contractor shall display signs with information on lightning safety.

(8) The Contractor shall provide adequate training to all personnel on lightning safety with the safety induction training required by JSSS 1.20 [*Safety Induction Training*].

コメントの追加 [J2]: personnel という主語が正しいか？というような問題があるので、上記（4）の表現を借りて受動態にしてあります。

(9) Unless otherwise determined to be safe by the HSO, the Contractor shall prohibit any hazardous exposed work and external work at heights during thunder storms including for example:

(a) work on or from Scaffolding;
(b) work on or by cranes or hoists or similar Contractor's Equipment;
(c) work on tops of walls, exposed, elevated slabs or roofs;
(d) ~~work on the~~ erection or removal of steel structures; and
(e) ~~Work on the~~ erection of steel reinforcement and other metal components.
(f) outdoor work of power utility
(g) work of plumping and pipe fitting

コメントの追加 [J3]: 要らないのでは？work on cranes というのが存在するのか？

コメントの追加 [JICA4]: 引用元のガイドラインにこのような記述があるため追記しました。

★for item 60
JSSS6.4.4 冒頭に追記の下記の文章のうち、最初のパラを除いて削除する（下記修正の通り）
For the purposes of interpretation and unless otherwise stated in JSSS the word "ladders" shall be deemed to mean portable ladders, namely those that can be easily moved or carried even if temporarily restrained and that are not an integral part of a building, structure or equipment.

~~Fixed ladders meaning those that are permanently attached to a building, structure, or equipment shall be the subject of separate design by the Contractor if for use in Temporary Works or by the Employer if for use in Permanent Works.~~
~~Fixed ladders whether for use in Temporary Works or Permanent Works shall be provided with fall protection for lengths of 7.32 metres and above in accordance with ANSI standard A14. 2-1990.~~

これに加え、6.4.1 (3)の最初の文章（下記黄色網替え部分）を「上下の移動が必要な場所には原則として階段を設ける」という趣旨の記述に差し替える。
Ladders and stepladders (other than fixed ladders) shall not be used for walkways in principle.
Ladders and stepladders may be used only if the HSO considers the risk of their use to be low.

関連して、2.5.7 (1)に記述の Walkway の定義に stairways を加える
2.5.7 (1)
"walkways" mean route or passage for safe movement of pedestrians including walkways, bridge type walkways, covered walkways, ramps, stairways, ladders and stepladders.

（理由）

- fixed ladder は鋼製で構造物に堅固に設置された垂直方向の移動に用いられるものを想定していると考えられるが、OSHA 等の記述をみると安全対策として多岐にわたる記述があり、ご提案の記載ではあまりに不十分（また、7.32m を超える ladder は ANSI A14.2-1990 に従うという根拠は見出せません。(ANSI 自体が 2017 年に見直され A14.2 ~ 14.5 に変わっています)）。
- 従って今般作成の JSSS では fix ladder については扱わない整理とする。
- すると 6.4.4 冒頭に追記された the word “ladders” shall be deemed to mean portable ladders,という表現とも整合する。
- 6.4.1 (3)については、「梯子は原則として使わない」ではなく、「原則として階段を使う」ことが記述されるべき。その上で、二つ目の文（安全性が確保されると HSO が認められた場合に限ってはしごを使ってよいという記述）につなげる。
- かかる原則論を記述することを前提に、2.5.7 (1)に「階段」を加える。

なお、以下はあまり本質的なことではありませんが、関連する確認作業の中で以下の点に気が付いたところ、ご確認の上、必要な対応をお願いします。

- Stepladder が step ladder と二つの言葉に分かれているところが散見されるので修正願います。
- 6.4.4 (5) (g)は同（3）に移すべきではないか（ladder と stepladder の両方を論じているため)。その上で、以下のように top という言葉を追記
  The top rung of a ladder or top step of a stepladder….
- 6.4.4 (4) (e) の内、(iii)は削除し、(i) and (ii)という形に整理する
  （理由）はしごをかける際に、上下で固定し、かつ設置部分に滑り止めを付すことで十分であり、人が支えている必要はない。「人が支える」という記述は OSHA などでも確認できない

JSSS 最終案のための JICA コメント・NK 対応説明一覧表

20200828

No.	JSSS Clauses	JICA Comments (20200722) Mandatory to change, for discussion/inquiry, – NK	NK Explanation/Actions	Proposal for Final JSSS	JICA コメント
1.	ACKNOWLEDGEMENTS 2) OSHA	–	OSAH の定義と規定の変更(下記 A1.1.1(6)及び 2.1.4、2.5.1)、及び JSSS で OSHA Part 1910 Subpart T Commercial Diving 及び Part 1926 Safety and Health Regulations for Construction Works の 2 つの Parts を参照しているため、2)の“Part 1926… for Construction” を削除しました。	2)の一部の記述を削除しました。	OK
2.	1.2.2 (2)	(2) References to “Laws of the Country” shall include all safety standards under such Laws and shall also include references to Laws of any other jurisdiction ~~that may be stated in the Contract Data~~. (JC3 and JC4). JC3: GC1.1.6.5 では Contract Data に記載するような立て付けにはなっていない。PSS に記載するようにすべき。 GC 1.1.6.5 does not specify this in the Contract Data. It should be mentioned on the PSS. JC4: deleted.	貴コメントに関し、下記の GC 1.4 では、any other jurisdiction は Contract Data と規定しています。JSSS の規定から that may be stated in the Contract Data を削除した場合、any other jurisdiction が自動的に JSSS に適用されることになります。そのため、原案の jurisdiction that may be stated in the Contract Data に戻すことを提案致します。 *GC 1.4 Law and Language: The Contract shall be governed by the law of the country or other jurisdiction stated in the Contract Data.* *GC 1.1.6.5: “Laws” means all national (or state) legislation, statutes, ordinances and other laws, and regulations and by-laws of any legally constituted public authority.*	(2)を原案に戻し、Contract Data を規定することを提案します。	(岡本)GC の 1.4 条は Governing Law についての記載で”the law of the country or other jurisdiction stated in the Contract Data” 当該国以外の法律を Governing Law(Applicable law)とする場合には CD に記載することを規定している。ここでは JSSS で参照する law なので Governing law とは異なる。 (伊藤)別紙参照
3.	1.2.2 (6)	–	発注者が PPE を保有していない場合やハーネス等の PPE の発注者やエンジニアへ提供する必要がある場合があるため、請負者が要員及び関係者へ提供すべき安全管理役務や設備に下記のように PPE を追加しました。 (7) …the same services and facilities (including for example healthcare…provision of PPE, records,…	(6)に PEE を追加することを提案します。	PPE を無条件に Employer’s Personnel に提供するのは反対。入れるべきではない。→PPE の追加部分を削除して前回案に戻してください。
4.	1.4.5 Specified Standards (4)	(4) Where JSSS refers to the standards of other countries, such reference is only to the technical requirements contained in such standards and not to any related ~~,~~ Laws (JC8) ~~or~~ legal enforceability (JC9) of any of those ~~other~~ (JC10) ~~countries~~. JC9: Legality?	MD 氏は下記のようにこれらの用語には合法性と法的強制力の違いがあり、(4)では JSSS にこれらの国の法的強制力は適用しないとの意図で規定しています。そのため、原案を提案致します。 “Legality” means whether the subject is legal or not and is not suitable. “legal enforceability” has a different meaning i.e. the means to ensure that people comply with laws and is correct. This clause is to cover the use of OSHA for example which is obviously legally enforceable only in USA. We understood that JSSS where so specified is to include the technical requirements of OSHA but not the US laws regarding enforcement penalties and legal action against employers when they do not comply with the law.	原案通り、legal enforceability を提案します。	OK
5.	1.7.3 (2)	(2) ~~Commencement Stage~~ Baseline (JC14)Safety Plan (Updated Bid Stage Safety Plan). C14: FIDIC では Baseline を使用することが普通。Baseline Safety Plan と呼称 Baseline is generally used in FIDIC. It should be replaced with Baseline Safety Plan.	FIDIC GC で Baseline の用語は使用されていませんが、契約遂行時の基準となる着工時の計画の programme, schedule, cost に Baseline が一般的に使用されていると理解しております。コメントにもとづき、Baseline Safety Plan に変更致します。 尚、BLSP の変更を明確に規定するために次を 1.7.7 Baseline Safety Plan の(4)として追記することを提案致します。 (4) If, at any time, the Engineer gives notice to the Contractor that the Baseline Safety Plan fails (to the extent stated) to comply with the Contract or to be consistent with the Contractor’s stated intentions, and that cannot be corrected by the issue of a Particular Safety Plan, the Contractor shall submit a revised Baseline Safety Plan to the Engineer in accordance with this Clause.	Baseline Safety Plan に変更致します。 1.7.3 (4)に BLSP の変更に関する規定の追加を提案します。	OK

6.	1.7.3 (3)	(3) Particular Safety Plans ~~(Updated separate plans if necessary for particular parts of the Works.~~ (Separate plans or updated Baseline Safety Plan).	Particular Safety Plans（PSP）は、下記の 1.7.8 に規定のように、現場の状況に応じて Baseline Safety Plan (BLSP)に基づき、特記を記載するものと考えております。 Baseline SP は、安全計画の原則を記載するものであることから、アップデートが必要な時は Baseline SP の改訂版で行うと考えます。 そのため、(3)は次の原案を再提案致します。 (3) Particular Safety Plans ~~(Updated~~ ~~separate plans if necessary for particular parts of the Works~~.) *1.7.8 Particular Safety Plans* *(1) These shall be prepared as necessary to suit changing circumstances or conditions at the Site, or following the issue of ~~later~~ (JC17) Method Statements, or where considered necessary by the HSO or when required by the Engineer.* MD stated “Commencement Stage Plan” means one comprehensive plan to be submitted at Commencement and before works start. We understood that any further updates for parts (if ever necessary) would be covered by a separate “Particular Safety Plan” for a particular part of the Works. Update and re-issue of the comprehensive BLSP during the execution of the Works will be a time-consuming and potentially wasteful task that we did not expect.	左記の変更案を提案します。	OK
7.	1.7.7(1)	(1) This shall be submitted within twenty-eight (28) days after the Commencement Date ~~and not less than twenty-eight (28) days before commencing any work at the Site~~. (JC15) JC15: These double limitations are sometimes very difficult or almost impossible to follow. If a contractor intends to erect a flag pole at the site on the commencement day, he must have submitted the Baseline Safety Plan 28 days before the Commencement day.	請負者は着工直後に準備作業として事務所や宿舎、アクセス道路の建設を開始する場合があります。安全管理の原則を規定する Baseline Safety Plan がまず必要です。そのため、コメントに従い工事の 28 日前の期限は削除しますが、次のようにいかなる工事の前に Baseline SP の作成提出を要求することを提案致します。 (1) This shall be submitted within twenty-eight (28) days after the Commencement Date and before commencing any work at the Site.	原案の一部を削除した左記の規定を提案します。	OK
8.	1.9.5 (1)	(1) The Engineer ~~may~~ reviews the Method Statements and ~~may~~ gives (JC26) notice of non-compliance to the Contractor… JC26: revised.	エンジニアの Method Statement のレビューに関し、貴機構と議論を重ねました結果として、原案は”may review”と規定しております。下記で説明しておりますが、1.7.9 (3)(a)で The Engineer may review the Safety Plans と規定しています。同様に、Method Statement のレビューに関しましても、コメントの”may”の削除ではなく、原案の”may review ”を提案致します。 NK: This “may” is most important and essential part in JSSS as seriously discussed between JICA and NK. 1.7.9 (3) specifies (a) The Engineer may review the Safety Plans and may give notice 1.9.4 (1) shall be same as 1.7.9. MD: I agree with NK comment. As we have discussed before, the use of “may” is intentional and an important requirement. It is optional and review and response should remain at the discretion of the Engineer, similar for example to programmes. See also FIDIC 2017 Clause 4.9.1 Quality Management System where “may is also used. Preparation of method statements under GC 4.1 should remain as a general obligation of the Contractor (as and when requested by the Engineer) with no stipulated requirements for review or response by the Engineer, hence	原案の”may”を規定することを提案します。	2017 年版 8.3 では Programme については”shall Review… may give a Notice”となっておりそれに合わせてください。 なお、Engineer may review という表現が 4 か所出てきます。 1.7.9(3)(a) The Engineer may review the Safety Plans and may give notice of non-compliance…. 1.9.5 (1) The Engineer may review the Method Statements and may give notice of non-compliance… ….（問題になっている箇所） 1.14.1 (3) The Engineer may review the Contractor’s proposal and may give notice of non-compliance……..（事故等により工事が一時中断し、再開に向けた手続きを論じている箇所） 1.37.6 The Engineer may review Temporary Works design…..

			“may”. NK2: NK request to use “may”.		この内、TW にかかる 1.37 はよいとして、他の三か所に関しては The Engineer reviews and may give notice…又は After reviewing the Safety Plans (Method Statements や Contractor’s proposal), the Engineer may give notice…と続けることとしてください。 これは安全を重視する JICA の姿勢の表れと理解してください。またその見地からは、特に 1.14 のような事項についてまで may がついていることには強い違和感を覚えます。
9.	1.11.3	If an accident has occurred, the Engineer may instruct the Contractor to suspend the Works or any part of the Works under GC 8.8 [Suspension of Work] and not allow resuming ~~w~~ Works ~~to recommence~~ (JC30) until such time as:	英語の使用上の観点から、次の変更案を提案致します。 and not allow work to recommence until such time as: MD stated the modification is not correct grammatically; the original wording is correct, but modified.	英語の使用上の観点から左記への変更を提案します。	OK
10.	1.11.3 (1)	(1) The cause has been investigated and established (JC31) by the Contractor. JC31: Is this term appropriate?	英語の使用上の観点から次の変更案を提案致します。尚、1.13.2(6)に事故調査は HSO の責務であることから(1)の Contractor を HSO に変更しました。 MD stated it is appropriate, it is necessary to establish the cause (meaning to discover, prove, or decide upon the true cause) before proceeding. As there is difficulty it may be better to say: (1) All circumstances have been investigated and the cause of the accident has been established by the HSO.	英語の使用上の観点から左記への変更を提案します。	OK
11.	1.11.3 (4)	(4) The measures have been implemented to ensure that no such accident can (JC32) reoccur. JC32: May?	英語の使用上の観点から原案を提案致します。 MD: “Can” is correct	英語の使用上の観点から原案を提案致します。	OK
12.	1.14.1	~~If the Engineer has issued an instruction under JSSS エラー! 参照元が見つかりません。 [Safety Compliance Instructions from the Engineer] or if the HSO has temporarily stopped the Works or any part of the Works in accordance with JSSS エラー! 参照元が見つかりません。 [HSO Scope of Duties and Authority]~~ If any part of the Works have been suspended due to safety reason whether the Engineer has instructed a suspension under JSSS 1.11 [Safety compliance Instructions from the Engineer] or otherwise, then, unless otherwise instructed by the Engineer, the procedure for resuming the Works or any part of the Works, shall be as follows:-(JC45) JC45: revised.	1.13(4) にもとづき HSO は作業の仮の中止を指示します。そのため、変更案の or other wise ではなく、原案（or if the HSO has temporarily stopped the Works…）に戻すことを提案します。 MD stated whilst the Engineer possesses the contractual right to suspend, the Contractor possesses no such right, the HSO can only temporarily stop the Works which is why it was worded in this way. I do not suggest any change.	左記の説明の通り、原案に戻すことを提案致します。	OK
13.	1.16.1	~~Respective s~~ Safety staff of the both (JC49) may also attend. JC49: modified.	英語の使用上の観点から次の変更した原案を提案致します。 Respective safety staff may also attend. MD stated not necessary to modify and the change is not correct.	英語の使用上の観点から左記の案を提案します。	OK
14.	1.17.1 (3)	(3) Analyse unsafe or non-compliance conditions and determine the effective measures (JC50) JC50: modified.	英語の使用上の観点から次への変更を提案致します。 MD stated “non-compliance” should be “non-compliant”.	英語の使用上の観点から変更を提案致します。	OK

15.	1.20.1	Safety induction training shall be provided by the Contractor for all Contractor's Personnel, any ~~s~~Subcontractors, suppliers and others for whom he is responsible, ~~including the Employer's Personnel and all other persons who are entitled to be on the Site at the request of the Employer or Engineer~~ and if requested by the Engineer, the Employer's Personnel and/or other persons who are entitled to be on the Site. (JC57) JC: 57: modified.	貴変更は、エンジニアが要求した場合、請負者は新規入場者教育を、発注者の要員へ実施することと理解します。 一方原案は、発注者の要員及び発注者及びエンジニアが現場への立入りを要求し認められた者への新規入場者教育を含めて実施することと解釈します。 発注者の要員は、現場では請負者の安全ルールに従うことが必要ですので、原則としてすべての要員への何らかの教育を行うべきと考えます。 MD 氏の下記の回答の通り、エンジニアが要求した場合 Variation になることから、原則発注者の要員を含め教育する原案を提案致します。 MD stated why is the change necessary and what is the meaning of "if requested by the Engineer"? It is now not clear and could be argued that any such request would constitute a variation instruction under GC 13, which would then create an obligation to pay the Contractor additionally for this. As the Contractor has a defined duty of care under the Contract to "take care for the safety of all persons entitled to be on the Site" (see GC 4.8) the original wording is correct. As a default, the Contractor should be responsible for providing safety induction training for all persons that are entitled to be on the Site. We do not recommend that the Engineer be involved in this process as this will tend to divide and therefore confuse the Contractor's clear responsibilities.	左記のとおり、新規入場者教育の実施は、原案を再提案致します。	OK
16.	1.21.3 (5) & (6)	-	1.21.3 Further Training of Operation Leaders and Skilled Workers の(5) & (6)は、1.21.2 の後半の(1) & (2) と重複しているため、削除致します。.	左記の理由で削除致します。	OK
17.	1.24.2	1.21.2 Medical, first aid and related services and facilities at the Site for accidental injuries shall be made available free of charge to the Contractor's Personnel. If so specified in the Particular Safety Specification, such medical services and facilities shall also be made available free of charge for ~~the family members of the aforementioned~~ other personnel/persons (e.g. the family members of the Contractor's Personnel, Employer's Personnel and their family members). (JC65) JC65: modified.	GC6.7 に規定の請負者及び発注者の要員への役務の提供を明確にすることと、PSS に規定があればその家族への無料提供するために、コメントを参考に原案を次のように変更しました。 Medical, first aid and related services and facilities at the Site for accidental injuries shall be made available free of charge for Contractor's and Employer's Personnel. If so specified in the Particular Safety Specification, such services and facilities shall also be made available free of charge for the family members of such Contractor's and Employer's Personnel. MD stated the JC's addition of "Contractor's Personnel" on the second line and "Employer's Personnel" in the last line, means that Employer's Personnel are not now covered. This is effectively not compliant with GC 6.7 where the Employer's Personnel should be covered actually under the Contractor's prevailing duty of care for anyone on the Site. *GC 6.7 Health and Safety … the Contractor shall ensure that medical staff, first aid facilities, sick bay and ambulance service are available at all times at the Site and at any accommodation for Contractor's and Employer's Personnel,* We will assume that the original text should not be changed.	左記の理由で原文の変更を提案致します。	OK
18.	1.24.4	1.24.4 The Contractor shall provide the following medical and first aid facilities on the Site: JC: added.	必要な医療サービスや施設の提供は、現場内が無理な場合は現場外でも可能と考えます。そのため、on the Site の追記しないことを提案致します。 MD: I think it is not necessary and maybe not correct to add "on the Site" The Contractor shall provide such facilities off the Site if there is no room on Site, for example on land which he has arranged himself. The important thig is that the facilities are provided	左記の理由で追加しないことを提案します。	1.24.4(1)~(7)に列挙されているものについては当然サイトの中に配置されているべきものと考えます(よって on the Site を復活)。なお、JSSS1.2.2(5)もご参照ください。
19.	1.24.5	… where local health authorities do not exist or are lacking in capability or standard of medical care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site to comply	医療だけでなく、医療を含む一般的な安全衛生の care ケアが必要と考えます。また、GC4.8(b)に規定の現場に立入りを容認された者の安全に配慮する必要があります。そのため、削除部分を残すことを提案します。	左記の理由で原文を残すこと	OK

		with his obligations as specified in the Particular Safety Specification ~~and as are necessary to fully protect all relevant personnel~~. (JC67) JC67: added and deleted.	MD stated I do not recommend the addition of “medical” or the later deletion. The Contractor has an overriding obligation under the Contract to provide care to all persons that are entitled to be on the site, the deletion now limits this duty to whatever may (or may not) be defined in the Particular Safety Specification, which is not a recommended default.	を提案いたします。	
20.	1.24.8	to perform Cardiopulmonary Resuscitation (CPR) and also to operate an Automatic External Defibrillator (AED) in accordance with the requirements of JSSS 2.9 [*PPE and First Aid*]. (JC69) JC69: added.	Annex A1.1.3 abbreviation に、CPR、AED は定義されています。そのため、原文の通りと致します。	左記の理由で原文通りと致します。	JICA の修正案通りとして下さい。 CPR 等の略語が最初に使用される場合は省略せずにフルで記述をすることが望ましいからです。
21.	1.26.11	–	本款の規定は、対象者が明確でないため、削除を提案します。 1.26.11 The Contractor shall also allow use of existing medical facilities, ambulances and equipment all as circumstances reasonably permit or as instructed by the Engineer. (NK13) NK13: Is it necessary to mention to whom the Contractor shall allow. MD stated It is probably better to delete this clause as there is no real definition of what emergency services and facilities are to be provided or for whom they are to be provided.	左記の理由で本款の削除を提案します。	OK
22.	1.30.2 (3) (e)	(e) Items to be coordinated with police, fire department and other ~~related organisations~~ relevant authorities; (JC83) JC83: modified.	(3)(b)では役所等を authorities、(3)(e)は消防署等を organization と使い分けています。そのため、(e)は消防署等を意味する原文の使用を提案します。 MD stated please note that these are not “relevant authorities” under the definition in Clause 1.2.2 (7) below and which are covered by (b) above. *1.2.2.(7) Any reference in JSSS to “relevant authority” or “relevant authorities” shall mean one or more legally constituted public authorities that own or have legal jurisdiction over the work or property concerned.*	左記の理由で原文通りとすることを提案いたします。	OK
23.	1.36.2	1.36.2 Healthcare services and facilities at the Site shall be made available free of charge. If so specified in the Particular Safety Specification, such healthcare services and facilities shall also be made available free of charge for ~~the family members of the aforementioned~~ other personnel/persons (e.g. the family members of the Contractor’s Personnel, Employer’s Personnel and their family members). (JC92) JC92: revised.	請負者及び発注者の要員は無料、特記に規定があれば家族も無料と規定するために、下記のように変更致しました。 1.36.2 Healthcare services and facilities at the Site shall be made available free of charge for Contractor’s and Employer’s Personnel. If so specified in the Particular Safety Specification, such healthcare services and facilities shall also be made available free of charge for the family members of such Contractor’s and Employer’s Personnel.	左記のように変更しました。	OK
24.	1.36.4 (2)	–	マラリアの予防接種は現時点では商業的には存在しないため、下記を削除致します。 Provision of anti-mosquito measures including nets, medications ~~or inoculations~~ (NK16) and the like in malarial prone areas. NK16: It is deleted because of no commercially available malaria vaccine as shown in WHO: https://www.who.int/immunization/research/development/malaria/en/ MD stated understood and agreed	左記の理由で inoculations を削除いたします。	OK
25.	1.37.2	1.37.2 An alternative standard is acceptable by reference to JSSS ~~エラー! 参照元が見つかりません。 [Compliance with JSSS and Other Regulations]~~ [Specified Standards] (JC94) providing that the proposed alternative also contains equivalent or higher standards for the management of Temporary Works. JC95: 引用先は 1.4 が正しいと思いますが、念のためご確認下さい。 Please confirm the reference is 1.4 or 1.4.5.	1.4 は JSSS と他の規則の順守ですが、1.4.5 の(2)に代替案を提案できると規定しています。そのため、1.37.1 は代替基準の提案に関する条項ですので、1.4.5 [Specified Standards]を規定致します。	1.4.5 を規定致します。	OK

26.	A1.1.1 (6)	–	(6) "**OSHA**" means the technical requirements of ~~"OSHA Standard Part 1926 – Safety and Health Regulations for Construction", as written in~~ the OSHA standard(s) from the Code of Federal Regulations (29 CFR) ~~and~~ published by the Occupational Safety and Health Administration, U.S. Department of Labor.	(6) 定義を変更しました。	OK
27.	A1.1.2		各章で定義の用語を、Annex A1.1.2 に移動し、定義語をまとめました。 5 章、7 章、10 章	A1.1.2 定義の内容を変更しました。	OK
28.	A1.1.2 (14)	(14) "**Elevated Access Structures**" means the substantial, elevated, temporary working platforms, usually comprised of structural steel columns, beams, framing and floor decking and used for performing ~~works at Sites~~ the Works with difficult access or with restricted room for construction operations or steeply sloping or offshore Sites. JC: deleted and modified.	作業を行うことが目的である作業構台の定義を規定するために、工事全体を示す the Works ではなく、作業を意味する works を再提案致します。 MD: It may be better to change "Works" to "works".	左記の理由で works を再提案します。	OK
29.	A1.1.3		A1.1.3 略語 GFCI 及び RCD を追記しました。	A1.1.3 略語を追加しました。	OK
30.	2.1.4 & 2.5.1	with the technical requirements specified in OSHA Standard Part 1926, Subpart E "Personal Protective and Life Saving Equipment", and Subpart M ~~–~~ "Fall Protection" ~~of "Part 1926 – Safety and Health Regulations for Construction"~~ and as follows: ~~-~~(JC129) JC129: deleted and modified.	OSHA の参照の方法を、次のように規定することを提案致します。 OSHA 1926 Subpart F [Xxx] OSHA 1926.152 [Xxx] OSHA 1910 Subpart T [Commercial Diving…] OSHA 1910.423I [Recompression facility] MD stated following JICA comment on later JSSS 2.5.1 it is apparent that there are inconsistencies in the numerous references to OSHA. As coordinated with NK, we have now simplified all reference to OSHA and made them consistent following the following convention: Refer also to change in the definition in Annex 1.1 & 2.5.1 also. There is also no need to refer to "technical requirements" as these are referred to in JSSS 1.4.5 (4).We have edited this throughout JSSS.	OSHA の参照の方法を左記のように変更し、統一致しました。	2.5.1(1)(e)the erection of tanks and communication and broadcast towers in Subpart E §1926.105 (Safety Nets)が削除されている。何故？
31.	2.1.4 (3)(b) (c)	–	下記の最大騒音の規定を、OSHA をもとに追記しました。 (b) Further to JSSS 2.1.4 the Contractor shall comply with OSHA 1910.95 [Occupational noise exposure], in respect of exposure to impulsive or impact noise; (c) Exposure to impulsive or impact noise shall not exceed 140 dB peak sound pressure level; and MD stated above is added by reference to the changes for Blasting sound in JSSS 7.6.3.	左記のように追記しました。	OK
32.	2.1.4 (3)(d)	(b) The Contractor shall monitor all workers whose noise exposure is equivalent to or greater than a noise exposure received in eight (8) hours where the noise level is constantly 90 dBA. The exposure measurement must include all continuous, intermittent, and impulsive noise within an 80 dBA to 130 dBA range and must be taken during a typical work situation. The Contractor shall choose the monitoring method that best suits each individual situation. (JC250) JC250: 音量のレベルと、サイト内で規制をかけるということについては、参照文献を確認させてください。dB の表現（dBA とするか否か）についてもそれに合わせて確認願います。	OSHA の下記の規定に基づき(b)を、90dB を 85dB へ変更し、dBA はdB に戻しました。 **§ 1910.95 Occupational noise exposure.** (b)(2) TABLE G-16—PERMISSIBLE NOISE EXPOSURES Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level. (d) *Monitoring.* (1) When information indicates that any employee's exposure may equal or exceed an 8-hour time-weighted average of 85	左記のように変更及び原案に戻しました。	別紙参照（140 は dBC、それ以外は dBA に修正）

		Please submit reference documents for JIICA's confirmation. Please check which of dB or dBA shall be specified.	decibels, the employer shall develop and implement a monitoring program. (2)(i) All continuous, intermittent and impulsive sound levels from 80 decibels to 130 decibels shall be integrated into the noise measurements.		
33.	2.1.7 (1)	(1) …regularly ~~throughout the Time for Completion of the Works.~~ until the Taking-Over Certificate is issued for the entire Works. (JC114A) JC114A: revised.	モニタリングの期間は、下記の理由で原案を提案致します。 Taking-Over Certificate（引渡し証明書）は、部分引渡しも含むため下記のように引き渡された部分のモニタリングはできないことになります。そのため through Time for Completion of the Works（完成期限内）を提案します。 MD stated this change is not correct; the original wording is correct. The Contractor has no such obligation (or right or need) to access any Sections of the Works which have been completed and taken over by the Employer. Similarly, there is no such right to access any part of the Permanent Works that have been taken over, occupied or used by the Employer.	左記の理由で、原案を提案します。	これについては強い確信をもって until the Taking-Over Certificate is issued であるべきです。理由は別紙を参照してください。 for the entire Works の部分が問題なのであれば、until the Taking-Over Certificate is issued for the entire Works or any relevant part of the Works というような言い方では如何でしょうか？ご検討下さい。
34.	2.1.7 (8) (f)	(f) Other parts of the Works required to evidence the Contractor's compliance with the ~~Contract~~ Safety Plan; and	Safety Plan より Contract の方が包括的であり、原案の Contract を提案します。 MD: Contract is better as it is more inclusive.	左記の理由で、原案を提案します。	Contract とかくと(g)との区別が良く分からなくなります。なので、f と g を統合して、other part of the Works which may be specified in the Contract or the Safety Plan とするのはいかがでしょうか。
35.	2.1.7 (9)	(9) The Contractor shall prepare a monitoring plan as a part of the Safety Plan or Method Statement for the above Works (JC115) which shall describe: JC115: Is "the above Works" to be replaced with "for the works hereinabove"?	英語の使用上の観点から原案を提案します。 MD stated I suggest not, the "above Works" is correct. As an improvement, this could be changed to the "for work of the types referred to in this Clause, which shall describe:"	左記の理由で、原案を提案します。	OK
36.	2.1.7 (10) (e)	(e) Confirm the occurrence and extent of any adverse effect of the Works execution (JC116) by means of regular inspections of all Other Properties; JC116: JC wonder whichever is appropriate "to execution of the Works" or "caused by execution of the Works"?	次の MD 氏の提案に変更致します。 MD stated fair comment, I suggest that "arising out of the execution of the Works" is better, as follows: (e) Confirm the occurrence and extent of any adverse effect arising out of the execution of the Works by means of regular inspections of all Other Properties;	左記の変更案を提案します。	OK
37.	2.2.1 (3)	(3) In addition to taking necessary action to keep any unauthorised persons off the Site the Contractor shall fully inform the relevant local ~~police force authorities (e.g. police force)~~ and if necessary request their ~~assistance~~ investigation to remove any trespassers from the Site. When requested by the Contractor, the Employer shall provide reasonable assistance to coordinate with such local authorities. (JC120) JC120: modified and added.	Authorities は、1.2.2 (7)で下記のように工事や建物を所有している官庁と定義しています。警察、消防署は 1.30.3 (3) (e)では organization を使用していることから貴案を変更した organization (e.g. police force) 及び assistance を提案致します。 MD stated the police force is not a "relevant authority" within the context of the definition in Clause 1.2.2 (7). 1.2.2 (7) Any reference in JSSS to "relevant authority" or "relevant authorities" shall mean one or more legally constituted public authorities that own or have legal jurisdiction over the work or property concerned. "Assistance" is correct and has more meaning than "investigation" as this is	左記の理由で、変更案と原案を提案致します	OK

			what the Contractor will require.		
38.	2.2.1 (5)	(5) to prevent alcohol and drugs from being brought onto the Site. (JC120) JC120: modified and added.	英語の使用上の観点から原案を提案します。 MD stated the addition of “from” is not grammatically correct.	左記の理由で、原案を提案します。	（伊藤）Cambridge Dictionary says “prevent something from XXing”. https://dictionary.cambridge.org/dictionary/english/prevent We are informed, however, that “from” is often omitted in U.K. Well, let’s omit it. （大場）辞書をよく読むと「英国では”from”を省略しがち」とある。
39.	2.2.4 (1) (b)	and pedestrians alike; and guidance to road-users and pedestrians alike (JC122); and JC122: Is it “and the like?	英語の使用上の観点から原案を提案します。 MD: Suggest no, the original text is sufficient.	左記の理由で、原案を提案します。	OK
40.	2.5.5 (3)	(1) Top-rails shall be designed to withstand 90 kgf. of horizontal force and mid-rails 70 kgf. of horizontal force and sufficient uprights shall be provided to sustain these forces.	重力単位系表示の kgf の規定から、国際単位系(SI)の N への変更を提案致します。 90kgf=883N、70kgf=686N	左記のとおり、SI 単位への変更を提案します。	端数で覚えにくいから括弧書きで両方示してはどうか？ 90kgf(approx.880N), 70kgf(approx.690N) 場所によって重力加速度が異なるため（1%くらいずれるケースが想定されます）、丸めた数字にするのがベターです。
41.	2.6.4	2.6.4 Preventive Measures against Windblown Dust and ~~Windblown~~ Debris JC: changed location.	2.6.4 (1)で ejected or windblown dust and debris と記述していることから、本款のタイトルから次のように windblown の削除を提案致します。 2.6.4 Preventive Measures against Dust and Debris	タイトルの変更を提案します。	OK
42.	2.7.5 (1) to (9)	(1) The Contractor shall follow the recommendations of OSHA as described in their Fact Sheet [refer to https://www.osha.gov/Publications/OSHA3863.pdf] (JC144) JC144: web のリンクを張られている箇所がここを含めて 2 か所のみ（もう一つは 2.9.1（8））あるのですが、こういうやり方でなければ引用できないのであれば残す、そうでなけれ別の引用方法を考えることとしてください。	OSHA の規定の要点を下記のように新規に追記しました。 (1) The Contractor should recognise lightning as an occupational hazard and take precautions to prevent exposure of all Contractor’s Personnel thereto. (2) to (9). MD stated please refer to the redrafting above to incorporate the main points from the OSHA recommendation.	左記の通り、変更、追記しました。	別紙を参照願います。
43.	2.7.7 (3)	When abnormality (JC145) is found in instruments, recalibrate or replace them. JC145: malfunctioning or damage?	安衛則の英語訳で使用している「異常」の英語を“abnormality”と規定しています。MD 氏の意見は、下記のようにこのままでも変更してもどちらでも可でした。JSSS を日本のコンサルタント・請負者が使用することを考慮し、原案通り“abnormality”を提案致します。 MD stated although “abnormality” is appropriate, I prefer an alternative however this wording is very frequently used in your (NK) draft so I have preserved this thinking that it is more understandable by your team. Please advise if you require this to be altered and we will change throughout. NK2: I checked the use of abnormality. Japanese OHS regulations use “abnormality” at many clauses. However, OSHA, BS, GC do not use at all. They use “fault” and “damage”. MD: There is really no problem with using this word. Actually as JSSS is essentially for the use of contractors (not employers) and as many or most such users will be Japanese, it may be helpful. Either way there is no problem	左記の理由で、原案とおりといたします。	OK

			NK: JSSS will leave as they are because Japanese regulations use “abnormality” and many Japanese consultants and contractors may use JSSS..		
44.	2.9.1 (8)	(8) Respiratory Protection Equipment (RPE) Selection and use of RPE shall be in accordance with HSE publication HSG53 (Fourth edition, published 2013), (https://www.hse.gov.uk/pubns/priced/hsg53.pdf) (JC153), RPE must be both adequate and suitable, whereby: JC153 same comment to 2.7.5. (JC144) JC144: web のリンクを張られている箇所がここを含めて 2 か所のみ（もう一つは 2.9.1（8））あるのですが、こういうやり方でなければ引用できないのであれば残す、そうでなけれ別の引用方法を考えることとしてください。 There are two locations in JSSS which refer to website (another is 2.9.1 (8)). If it is essential/avoidable to specify requirements by method of referring to the websites, they will be left as they are, if not please propose another method to refer to.	HSE の要点を追記し、次のように変更しました。 (8) RPE shall protect workers’ airways, lungs and related bodily systems against damage and injury from Harmful Substances or from oxygen-deficient atmospheres when other controls are either not possible or insufficient on their own. RPE shall be selected with due consideration of: (a) the Hazardous Substance(s) and the concentration in the air (exposure); (b) the form of the substance in the air (e.g. gas, particle, vapour); (c) and (d) … RPE shall be: (a) Correct for the Hazardous Substance such that it reduces exposure to the level required to protect the wearer’s health; and (b) Correct for the wearer, task and environment, such that the wearer can work freely and without additional risks due to the RPE. MD stated refer to our notes under JSSS 2.7.5. I would prefer to refer to the HSE Guide as it is very comprehensive, however the above simple redrafting incorporates some of the main points from the HSE Guide together with the existing reference to ANSI Z88.2-2015 in Table 2.9.5 below, should be sufficient but please review and advise if there are any further requirements.	左記の通り、変更致します。	追加いただいた文の最後に As for details, refer to HSE publication HSG53 (Fourth edition, published 2013)と追記願います。
45.	4.1.4	4.1.4 Instruction for Contractor’s Personnel Further to the requirements of JSSS 1.7 [*Contractor’s Safety Plans*], JSSS 1.9 [*Contractor’s Method Statements*] and JSSS 1.15 [*Contractor’s Safety Management Activities*], the Contractor shall include details of the following in the Method Statement and Safety Plan for the ~~w~~ Works (JC171) involving the use of Contractor’s Equipment and shall fully inform all relevant Contractor’s Personnel associated therewith of all requirements before the commencement of any such operations, ~~including~~ such as: (JC172) JC171: 混在しているので一部修正した箇所があります。	“Works”（GC1.1.5.8 「工事」）と“work”（GC3.1 では「作業」、GC3.2(a)では「工事」）を、内容に合わせて使用しております。本款では、MS と SP を作るべき「工事/作業」である”work”と規定する意図がありますので、原文とおり”work”で規定致します。 MD stated the original is correct. There are two uses generally; relevant work or works refers to a subject task(s); Works is a defined term under the Contract.	左記の理由で、原案とおりと致します。	OK

		Works and work are mixed in their use, so revision is made at some places.			
46.	4.1.6 (3) (c) & (d)	(c) ~~Ensure that~~ Inform the Contractor's maintenance personnel ~~are made aware~~ of any apparent defect or maintenance requirements. ~~And that such personnel have performed any required repair or maintenance before the start of operation.~~ (JC176) JC176: deleted and added.	欠陥のある又は保守が必要な機械を運転しないことの規定が必要ですので、変更文に次を追加致します。 "and not use such Contractor's Equipment till any required repair or maintenance is performed." MD stated not now the same meaning, the alternative wording is weaker and effectively means that equipment can be used even when defective. An operator should not be forced to use equipment which is defective, this clause now allows it. NK: addition of "and not use such Contractor's Equipment till any required repair or maintenance is performed."	左記の理由で、追記を提案致します。	OK
47.	4.3.3 (2) (i)	(i) Operators of excavating equipment are aware that excavator buckets shall never pass over the operator's seat of another Contractor's Equipment; (JC180) JC180: revised and added. ("another" is necessary to make the stipulation meaning.)	英語の使用上の観点から"any other"へ変更致します。 MD stated use of "another" is not correct, "any other" would be better.	左記のように変更致します。	OK
48.	4.3.9 (1)	the Contractor on ~~on~~ until completion and taking over of the Works. JC: changed.	英語の使用上の観点から"on or before"へ変更致します。	左記のように変更致します。	コンクリートプラントなどはコンクリート工事が終了すれば解体するので taking over of the Works を待つ必要がない。 修正された案で taking over まで待つ必要がないということで解釈できるのであればそのままでも結構です。
49.	4.3.12 (3) (d) and (e)	-	NK の電気専門家に相談し、下記の理由で下記(d)と(e)の代わりに(d)を規定することに致しました。(詳細は別紙の添付-1 参照) 1)感電事故防止の装置の種類と適用国は次である。 ・ELCB: Earth Leakage Circuit Breaker, 漏電遮断装置:日本 ・RCD: Residual Current Device, 残留電流装置(JIS B9960-1 漏電電流保護装置):欧州、IEC ・GFCI: Ground-fault circuit interrupters,地絡回路遮断装置:米国 2)電源・接地系統の種類と適用国は次である。 ・TT 接地系統:日本 ・TN 接地系統:欧米 3)感電防止装置の種類と使用国は次である。 ・ELCB は、日本特有の装置である。 ・RCD は欧州、世界中の国で使用されている。 ・GFCI は米国、世界中の国で使用されている。 上記の使用状況から判断し、JSSS は国際的な装置である GFCI 及び RCD を、下記(d)のように規定致します。 ~~(d) Wherever possible provide an ELCB (Earth Leakage Circuit Breaker) or RCD (Residual Current Device) in the electrical supply to electrical equipment;~~ ~~(e) If for any reason, an ELCB or RCD cannot be provided, ensure that the metal exterior of the electrical power supply, metal outer casing of electric motors and the electrical equipment are all grounded;~~ (d) Provide grounding to all electrical power supply systems with GFCI or RCD in accordance with JSSS 6.7.3 [*General Safety Requirements*];	左記の理由で(d)の変更、(e)の削除を提案致します。	OK

50.	4.7.1 (3)	(3) Unless otherwise specified in the Contract, all such tanks, foundations, support and containment structures, paved surfaces, fencing, screens and associated facilities shall be demolished, ~~, and~~ removed and disposed of in a safe~~ly~~ and ~~in an~~ environmentally acceptable manner by the Contractor ~~on~~ until (JC192) completion and taking over of the Works. All areas shall be backfilled, restored to a safe and suitable condition, cleaned and landscaped, all to the approval of the Engineer. JC192: revised.	英語の使用上の観点から原案の“on”を提案します(他の部分は MD の変更です。) MD stated “on” is correct.	左記の理由で、原案とおりと致します。	48 番をご参照ください。修正された案で taking over まで待つ必要がないということで解釈できるのであればそのままでも結構です。
51.	旧 5.1.2 (1) to (5)	-	各章・節の定義を、Annex 1.1 へ移動し、他の章節で共通して使用するように変更しました。結果として、 (1) –(5)の定義を削除しました。	左記のとおり削除しました。	OK
52.	旧 5.1.2 (3) and (4)	(3) “**Rated Capacity**” means the maximum hoisting load for each certain types of Hoisting Equipment as officially permitted recommended by the manufacturer. This will vary according to configuration of Hoisting Equipment and conditions of use such as length and angle of boom and other factors as permitted officially recommended by the manufacturer. (JC193) (4) “**Safe Working Load**” means the maximum safe working load for each type, size and capacity of Hoisting Equipment and Rigging Equipment as officially recommended by the manufacturer. (JC193) JC193: Rated capacity は mobile Clane と tower Clane に限定され、その他のクレーンには safe working load が適用されるはずです。 JC understand that Rated Capacity is applied to mobile Crane and tower Crane, and safe working load is done to other cranes.	OSHA の中で Rated Capacity と Safe Working Load が混在しています。そのため、JSSS の中で分かりやすいように、この用語を統一して下記のように Annex 1.1.2 に定義することを提案致します。 “Annex 1.1.2 (29) “Rated Capacity” (referred to occasionally in OSHA and elsewhere as “Safe Working Load”) means the maximum load capacity for items of Contractor’s Equipment and Temporary Works, as officially recommended by the manufacturer. The Rated Capacity may be dependent upon the configuration and conditions of use (e.g. length, angle of boom and the like). MD stated both terms are similar or even the same, it appears that the word “safe” was dropped in some countries for legal reasons and Rated Capacity or Manufacturer’s Rated Capacity used instead. OSHA still uses both, however there is really no clear separation of meaning in OSHA which refers generally to: Rated Capacity for cranes, derricks, jibs and booms of cranes, ladders, platforms, jacks, lift trucks and stackers, hoist assemblies (Rigging Equipment?) slings (ditto), electric blasting equipment, and SWL for Rigging Equipment (the latter including overhead hoists) which appear to duplicate some of the above I suggest as an alternative in JSSS that the separate definition for SWL is not necessary, could be deleted and the definition for example could be as above: This adjustment also and simply solves JICA query JC 261 and 266.	左記のように Annex 1.1.2 に定義することを、提案致します。	OK
53.	5.2.5 (1), (2), (JC195) (3), (5), (14), (JC196) 5.4.1 (1) (3) (JC199)	(1) Select Hoisting Equipment which has a Rated Capacity~~/Safe Working Load~~ (JC195)and function compatible with the work conditions and requirements, including loads, surface conditions, access, working area, radius and angle of boom, etc. (2) Clearly display the Rated Capacity~~/Safe Working Load~~ of the	5.1.2 (3) and (4)で説明致しましたように、Rated Capacity に統一し、関係個所を変更致します。	左記のように変更致します。	OK

		Hoisting Equipment so that all operators and Riggers are fully aware at all times. (JC195) JC195: added.			
54.	5.2.1 (1) (b)	(b) The Hoisting Operation ~~area limits~~ Boundary; (JC194)	定義されていないため、小文字で boundary と致します。 MD stated "Boundary" is not a defined term and should not be capitalised.	左記のように変更致します。	OK
55.	5.2.5 (14) (c)	-	重力単位系表示の kgf の規定から、国際単位系(SI)の N への変更を次のように提案致します。(500kgf=4,903N) The assumed load (i.e. 1.3 times of total weight of gondola and workers on board plus ~~500 kgf~~ 4,903N) shall not exceed	左記のとおり、SI 単位への変更を提案します。	40 と同様。端数で覚えにくいから括弧書きで両方示してください。 500kgf(approx.4,900N)
56.	6.1.4 (2)	(c) Other standards proposed by the Contractor to which the consent of the Engineer is provided. (JC202) JC202: added.	JSSS 1.4.5 (2)で代替基準の提案を認めていますので、(c)での追加は重複と考えられ、(c)を追記しない原案を提案致します。 MD stated the addition is not necessary as the Contractor is allowed to propose an equivalent alternative under JSSS 1.4.5 (2).	左記の理由で、原案通りを提案致します。	OK
57.	6.2.1 (4)	(4) In the case of (a) and/or (b) hereof (JC205), the Earthwork Support may not be required. JC205: is "hereof" "hereunder" or "below"?	英語の使用上の観点から"following"の使用を助言致します。 MD stated "hereof" should be changed to "following"	左記の通りと致します。	OK
58.	Table 6.2.1	Earthwork Support: Piles, waling~~s~~ and strutting (JC210) Vertical or horizontal displacement~~,~~ of struts and waling and other members. (JC210) JC210: revised.	"struts"及び"walings"で統一致します。	左記の通りと致します。	OK
59.	6.3.4 (7)	…to be "safe for use". (JC219) JC219: modified.	英語の使用上の観点から""無しに変更します。 Edited throughout as lower case first letters and no quotation marks so that it is consistent and does not conflict with JSSS 6.5.3	左記の通りと致します。	OK
60.	6.4.4	JC222: 6.4.4 に出てくる ladders は全て potable ladders にした方がよいのではないでしょうか？ご検討下さい。 Please check if all "ladders" shall be replaced with "portable ladders"	原案では移動はしごの定義が無いため、JSSS で使用するはしごは移動はしごであること、固定はしごは別であることを、下記の斜文字のように追加で記述することを提案致します。 NK: I think they are better to be replaced. To MD, how do you think? MD: Whilst we do not use ANSI or OSHA as a reference standard for ladders, please note that: 1) ANSI standard A14. 2-1990 defines a "**portable ladder"** as "a "**ladder"** that can readily be moved or carried, usually consisting of side rails joined at intervals by step, rungs, cleats, or rear braces." If they are fixed "**ladders"** they are required to have fall protection at a length of 24 feet. 2) OSHA 29 CFR 1910.21(e)(2) defines "fixed ladders as "a ladder permanently attached to a structure, building, or equipment." Portable ladders are not defined in the standard, but by inference, a portable ladder would be any ladder not fitting the definition of a fixed ladder. 3) The ANSI standard A14.2-1990 defines a portable ladder as "a ladder that can readily be moved or carried, usually consisting of side rails joined at intervals by step, rungs, cleats, or rear braces." There is no reference standard in JSSS for ladders and the use of "portable" is therefore not prescribed. Maybe better to include for example the following clause here and merely refer in all other places merely to "ladders":	左記の理由で、ladder の解釈の追記と、原案の使用を提案します。	・別紙を参照ください。 ・6.4.4 (4)(e)(iii)は削除してください。

			For the purposes of interpretation and unless otherwise stated in JSSS the word "ladders" shall be deemed to mean portable ladders, namely those that can be easily moved or carried even if temporarily restrained and that are not an integral part of a building, structure or equipment. *Fixed ladders meaning those that are permanently attached to a building, structure, or equipment shall be the subject of separate design by the Contractor if for use in Temporary Works or by the Employer if for use in Permanent Works.* *Fixed ladders whether for use in Temporary Works or Permanent Works shall be provided with fall protection for lengths of 7.32 metres and above in accordance with ANSI standard A14. 2-1990.*		
61.	6.6.3 (5)	(5) Provide ~~w~~ Walkways in accordance with JSSS 6.4 [*Walkways, Ladders and Stepladders*]. JC: revised.	Walkways は定義されていないため、原案の小文字と致します。 尚、次のように解釈を規定しています。 2.5.7 (1) Walkways For the purposes of interpretation: "walkways" mean route or passage for safe movement of pedestrians including walkways, bridge type walkways, covered walkways, ramps, ladders and stepladders.	左記の理由で現案を提案します。	OK
62.	6.7.3 (2) (c)	-	電気専門家による助言をもとに、以下の理由で、原案の変更を提案致します。(詳細は別紙の添付-1 参照) 1) 接地が不要な安全な電圧として、日本は 60V、OSHA は、50V、HSE は、55V 又は 64.5V を規定しています。 2) 各国の配電電圧により接地不要な電圧が異なることから、OSHA1926.405 を基本とする原則から、(c)は 50Vを規定します。 (変更案) Where cordless tools are not used, as a first preference the Contractor shall use cord and plug connected tools on a low voltage supply system with a maximum voltage to ground not exceeding 50V subject to the supply system at the Site. (原案) Where cordless tools are not used, as a first preference the Contractor shall use cord and plug connected tools ~~with a maximum voltage to ground not exceeding 50V/55V; and~~	左記の理由で変更案を提案します。	OK
63.	6.7.3 (3)		電気専門家による助言をもとに、下記のように原案の変更を提案致します。(別紙の添付-1 参照) JSSS6.7.2 で OSHA1926.405 を遵守することと規定していることから、OSHA で規定の Ground-fault circuit interrupters (GFCI)を規定し、( )書きで IEC 及び英国で規定の RCD (Residual Current Device)を規定します。GFCI 及び RCD は Annex に定義を追加致します。 (変更案) (3) GFCI (also referred to as RCD) (a) Ensure that equipment, tools, leads, wires or cables are free of defect or damage, in particular when mains supply is used; (b) Use GFCI or RCD to detect any faults in the electrical system and rapidly switch off the supply; and	左記の理由で変更を提案致します。	OK

			(c) GFCI shall be properly installed and enclosed; properly checked; treated with care; kept free of moisture and dirt; and protected against vibration and mechanical damage. （原案） (3) ~~Residual current (trip) devices~~ (a) Ensure that equipment, tools, leads, wires or cables are free of defect or damage, in particular when main supply is used; (b) Use RCD to detect ~~some~~ faults in the electrical system and rapidly switch off the supply; and ~~RCDs~~ shall be properly installed and enclosed; properly checked; treated with care; kept free of moisture and dirt; and protected against vibration and mechanical damage.		
64.	7.2.1 (4)	(4) The Contractor shall be responsible for preserving the structural integrity (JC239) of all excavated sides ~~and excavations~~ (JC240) and shall provide whatever Earthwork Support may be necessary to achieve this, in accordance with the requirements of JSSS 6.2 [*Earthwork Support*]. JC239:オープン掘削を前提としているので、掘削した側面について言及するということだと思いますが、その際 structural integrity という言い方でよいものでしょうか。ご検討ください。 This sub-clause specifies excavated side surfaces in open excavation. Please review whether the use of “structural integrity” is proper.	下記の説明の通り、原案の structural integrity を使用致します。 MD stated the clause refers to all types of excavations including open cut and structural excavations. “Structural integrity” which is more than stability, it includes physical homogeneity and strength of sides of all such excavations.	左記の通り、原案通りと致します。	OK
65.	7.2.1 (6)	(6) If loose rock, boulders, trees and the like, are positioned above working areas and where there is any risk that these may pose a danger to workers, ~~unless otherwise instructed by the Engineer,~~ the ~~HSO~~ Contractor (JC242) shall prohibit workers from entering the working areas and ~~issue appropriate instructions including for example to~~ take following measures as appropriate. (JC241) JC242: revised.	安全管理に関する事項であることから、HSO を原案通り残すことを提案致します。 NK: HSO shall be left as it is. To MD, please review this. MD: HSO should remain as this clause is primarily to cover his safety management.	左記の通り、原案通りと致します。	OK
66.	7.6.3	7.6.3 Blasting Noise (JC250) Noise levels, measured in areas close to the Exclusion Zone and in areas accessible to other workers or the public shall not exceed a sound pressure level of 85 dBA and/or a peak sound level of 110 dB. Noise levels measured at the boundary of the Site shall not exceed a sound pressure level of 85 dBA and/or a peak sound level of 110 dB. JC250: 音量のレベルと、サイト内で規制をかけるということについては、参照文献を確認させてください。dB の表現（dBA とするか否か）についてもそれに合わせて確認願います。 Please submit reference documents for JIICA’s confirmation. Please check which of dB or dBA shall be specified.	下記の理由で、下記の斜文字の規定に変更することを提案致します。 (詳細は別紙添付 - 2 参照) 1) 香港 MTR のスペックを参考にし、85 dBA と 110 dBを規定していました。 2) 日本の騒音規則は、現場の境界で 85 dB を越えないことと規定。 3) OSHA は、peak sound pressure level が 140dB を越えないことと規定。 4) HSE は、同様に 140dB を越えないことと規定。 以上から、現場の境界では、香港 MRT を参照に 85dBA 及び 110 dBを越えないこと、現場内では JSSS 2.1.4 [Noise]の規定を遵守することを追加で規定します。 尚、2.1.4 に peak sound pressure level は 140dB を越えないことを追加で規定します。 NK: Please refer to the explanation separately attached. MD: The reference is made to the Hong Kong MTR, Materials and Workmanship Specification for Civil Engineering Works, Blasting Works clause 25.12, provided by JICA as shown below. “Noise arising from blasting, when measured at any locations open to the public, shall not exceed a sound pressure level of 85 dBA *and/or a peak sound level of 110 dB.”* NK: Japanese Noise Regulation Act stipulates noise of the specific construction works shall not exceed 85 dB at the boundary of the working area. It does not mention other than this.	左記の理由で、変更を提案致します。	発破作業で vibration に対しての規制は近隣構造物の保護の見地から記載されることがありますが、発破で発生する騒音のレベルに対して規定することは特殊な場合に限定されませんか？香港は近隣住民が多いことが多いのと、香港花崗岩という地質条件から発破作業が避けられないという特殊性があり騒音レベルが記載されているのではないですか？ →7.6.3 の最初の文（下記）は削除でお願いします。 Noise levels measured at the boundary of the Site shall not exceed a sound pressure level of 85 dBA and/or a peak sound pressure level of 110 dB.

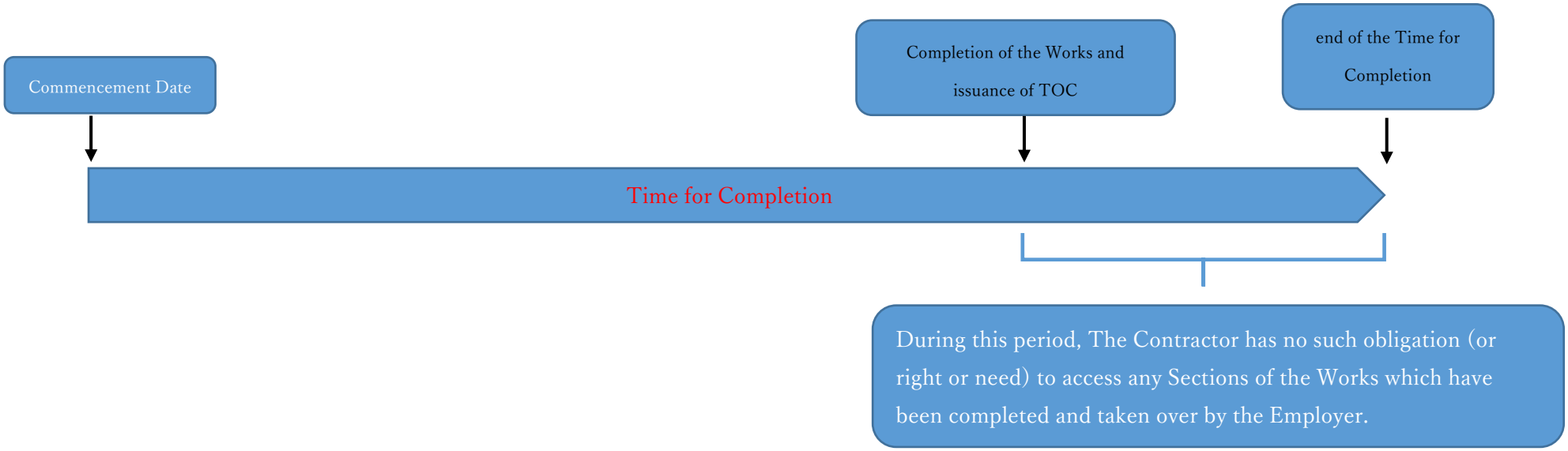
			NK propose to replace them with the following: *7.6.3* *Noise levels measured at the boundary of the Site shall not exceed a sound pressure level of 85 dBA and/or a peak sound pressure level of 110 dB. Noise from blasting in the Site shall be controlled in accordance with JSSS 2.1.4 [Noise].* NK: The following sentence may be stipulated in 2.1.4 (b) to cover impulsive or impact noise. 2.1.4 (b) *Exposure to impulsive or impact noise shall not exceed 140 dB peak sound pressure level.* (copied from OSHA 1926.52 (e))		
67.	7.6.6 (6)	(6) Environmental and health compliance requirements including vibration, noise, fire, and the like, required by ~~Laws~~ Laws of the Country (JC253) and the Contract. JC253: Is the Law of the Country correct?	契約ですでに要求事項が規定されていることから、required by 以降を削除し、要求事項のみを規定することを提案致します。 MD stated it originally stated “Law and the Contract” which was correct. As added by JICA, “Law of the Country” is not necessary or correct. To simplify suggest delete the phrase:“, required by Laws of the Country (JC253) and the Contract”	左記のように一部の削除を提案致します。	OK
68.	旧 10.1.2 (1) (a) to (e)	10.1.2 Definitions JC270: modified. JC271: Annex 1.1 にも定義あり。どちらかを削除。 There are definitions in Annex 1.1 and the above, so one shall be deleted. JC272: (d)とほとんど内容が同じで意味を為していません。左記のように修正してはどうでしょうか。 The content is almost same as (d). The revision is proposed as above.	他の章と同様に用語の定義を Annex 1.1 へ移動しました。 “Diving Works”の定義も変更しました。	Annex へ定義を移動しました。	OK
69.	10.2.1	10.2 DIVE SAFETY PLANS 10.2.1 General Requirements for the Dive Safety Plans ~~(1)~~ The Contractor shall prepare Dive Safety Plans as part of the Safety Plan for the Works in compliance with the requirements of with JSSS 1.7 [*Contractor’s Safety Plans*]. ~~(1) The submission requirements in accordance with JSSS エラー! 参照元が見つかりません。 [*Contractor’s Safety Plans*] shall be as follows:~~ (JC274) ~~(a) The Bid Stage Safety Plan shall include the Outline Dive Safety Plan;~~ ~~(b) The Baseline Safety Plan shall include the Updated Dive Safety Plan; and~~ ~~(c) The Particular Safety Plans shall include the individual Particular Dive Safety Plans to be submitted for and in advance of each Diving Operation.~~ JC274: ドラフトファイナルにおいて、前回のバージョンと比較して Dive Safety Plan の記述をかなり拡充していただいていますが、以下の 2 点に関して違和感があったので、大きく修正しています。 (1) Diving についてだけ、Bid Stage、Commencement、Particular と 3 種類の Safety Plan を要求していること。 (2) Particular については、ドラフトファイナルで頂いていた記述を見ると、個々の Diving Operation 毎に提出することを求めているように思えるが (10.2.1(2))、Diving Operation の定義と合わせ読むと、例えば「同じケーソンに関する作業をするのに、午前と午後で Diving を 2 回に分けてやるときには、午前で 1 回、午後にも 1 回、それぞれの	貴コメントをもとに、他の工事で規定している 3 種の Safety Plan (SP)に追加して、潜水作業直前に作業内容の確認及び安全点検等を行う貴案の Dive Safety Schedule と同じ目的の Dive Operation Safety Plan を追加する下記の変更案を提案致します。その理由は下記のとおりです。 (1) The Contractor shall prepare the following Safety Plans for the Diving Works in compliance with and in addition to the requirements of with JSSS 1.7 [*Contractor’s Safety Plans*]. (a) Bid Stage Safety Plan for Diving Works; (b) Baseline Safety Plan for Diving Works; (c) Particular Safety Plans for Diving Works; and (d) Pre-dive Safety Plan for Diving Operation （以下、Safety Plan、Bid Stage Safety Plan、~~Commencement~~/Baseline Stage Safety Plan、Particular Safety Plan を SP、BSP、BLSP、PSP と略します。） (1) 潜水作業以外でも 3 種類の SP を要求しております。他の作業は、BLSP で一般的に詳細な安全対策が規定されていますが、JSSS 1.7.8 & 1.7.9 のように現場の状況や特殊性に応じて PSP を作成することを規定しています。 コンクリート工事では、9.2.1 (2)で、PSP とは記述していませんが、コンクリート作業で必要な詳細な SP の作成を規定しています。	左記のように 4 種類の SP を提案致します。	今回は暫定的にこの内容のままセットをしたいと思いますが、後日この内容については専門の会社に確認をしたいと考えています。

		Diving Operation 事に Safety Plan を提出する」ようなことを意味しているようにも読み取れ、それはさすがにやりすぎのように見える。 上記の事情から、Bid Stage、Commencement に関しては、それぞれの段階での全体の Safety Plan に Diving のことも記述することを求める記述にしてあります。 また、個別の Diving Operation に関する Safety Plan については一日の Diving 作業に関する記載をまとめて「前日までに提出する」ことで記載を修正し、名称も Dive Safety Schedule としています（10.2.4（1）の修正をご覧ください）。	発破作業では、1.7 SP の規定に追加して 7.6.7 Blasting Safety Plan の作成を規定しています。 (2) ご指摘の通り Diving Operation は一回の潜水と規定しています。BLSP で潜水チームや潜水場所等の具体的な記述が無い場合、PSP で実際の潜水作業（複数の潜水作業）の詳細の記述が必要です。 OSHA1910.421(d)Planning of a diving operation で規定の潜水計画は、貴案の Dive Safety Schedule と考えます。OSHA と名称を合わせまして、Pre-dive Safety Plan として作成することを提案致します。 **貴コメントを参考に、4 段階の SP としまして、現実的に適用できる案として上記の 4 種類の SP を提案致します。**		
（追加）	10.2.3(2)				Baseline Safety Plan は HSO がレビューするという表現はおかしいため、削除が適当です。
70.	10.2.4 (1)	10.2.4 ~~Particular~~ Dive Safety ~~Plans~~ Schedule (1) ~~In compliance with JSSS 1.7.8 [*Particular Safety Plans*], the Particular Dive Safety Plans shall contain all further information specific to each Diving Operation not covered by the foregoing Bid Stage and Baseline Dive Plans together with~~ In order to secure safety of all Diving Operations, a dive safety schedule shall be prepared containing information specific to Diving Operations to be carried out in a day together with all supplemental information obtained during pre-dive planning and assessment, to collectively demonstrate the Contractor's compliance with the requirements of OSHA and JSSS for each Diving Operation, including for example: (JC277) JC277: deleted, added and modified.	10.2.1 で提案しましたように、10.2.4 として Particular Safety Plans (for Diving Works)を提案致します。貴機構提案の Dive Safety Schedule は、10.2.5 に 10.2.5 Pre-dive Safety Plan に規定致します。 (1) In compliance with JSSS 1.7.8 [Particular Safety Plans], the Particular Safety Plans shall contain all further information specific to Diving Works not covered by the foregoing Bid Stage and Baseline Safety Plans together with all supplemental information obtained during pre-dive planning and assessment, as necessary to comply with the requirements OSHA in particular OSHA 1910.421 [Pre-dive procedures] for all Diving Works. (2) The Particular Safety Plans shall be prepared for the basis of the Pre-dive Safety Plan for Diving Operation to be carried out in a day. (3) The Particular Safety Plans shall include the following for example, however, the plan shall be modified to be indicative for the use of the Pre-dive Safety Plan:	変更案を提案します。	・10.2.4(1)の末尾の部分に of か何かを入れておかなくてよいでしょうか？（下記赤字）「requirements of OSHA in particular OSHA 1910.421」 ・10.2.4(3)の後段の意味がよくわかりません。 The Particular Safety Plans shall include the following for example, however, the plan be modified to be indicative for the use of the Pre-dive Safety Plan: PSP と Pre-dive Safety Plan の関係を示そうとされているのであれば、non-native も分かるような表現に修正してください。但し、10.2.5 の(2)の記述があるので、削除して良いかもしれません。 ・10.2.4 の(4)、(5)の下記の記述について、PSP は総則に従えば HSO が作成してエンジニアの review を受けるべきドキュメントなので、そういう方向で修正をしてください。但し、diving の特殊性に鑑み、作成にあたって DPCI や diver の協力を得て作成するといった言い方を妨げません。 (4) The Particular Safety Plan shall be prepared by the DPIC or another Diver that has the qualification, experience and capability deemed sufficient by the HSO. (5) The Particular Safety Plan shall be reviewed and approved by the HSO.
71.	10.2.4 (k) to (o)	(k) ~~The Particular Dive Safety Plan shall be prepared by the DPIC or another Diver that that has the qualification, experience and capability deemed sufficient by the HSO;~~ A dive safety schedule shall be prepared by DPIC or another Diver that has qualification, experience and capability deemed sufficient by the HSO; ~~(JC277)~~ (l) ~~The Particular Dive Safety Plan shall be reviewed~~	上記の説明の通り、PSP を本款では規定しますことから、原案に戻すことを提案致します。なお(1)は PSP の内容を規定することから、PSP の作成手続きや取り扱いを規定する(k)から(o)は(4)から(8)への変更を提案致します。	原案及び番号の変更を提案します。	OK

		~~and approved by the HSO;~~ A dive safety schedule shall be submitted to the HSO by the day preceding the scheduled date of the Diving Operations for his review and approval; ~~(JC277)~~ JC277: deleted, added and modified.			
72.	10.2.5	10.2.5 Pre-dive Safety Plan	10.2.1 で提案しましたように 10.2.5 Pre-dive Safety Plan (Dive Safety Schedule の代替)の款及び規定を次のように提案致します。 10.2.5 Pre-dive Safety Plan The Contractor shall prepare Pre-dive Safety Plan for each Diving Operation as follows: (1) To contain information specific to the Diving Operation to be carried out in a day to secure safety of Diving Operation, in accordance with OSHA 1910.421 [Pre-dive procedures]; (2) To describe the items given in the above 10.2.4 (1) in specific according the Diving Operation to be made; (3) To use for briefing to the Dive team. (4) To be prepared by DPIC or another Diver that has qualification, experience and capability deemed sufficient by the HSO; (5) To be submitted to the HSO by the day preceding the scheduled date of the Diving Operation for his review and approval; (6) To be available at the dive location to each Dive Team member.	款の追加を提案します。	10.2.5(2)でリファーすべきなのは 10.2.4(1)ではなく(3)なので、そのように修正してください。
73.	10.3.1 (2)	(2) The (updated) ~~Baseline~~ ~~Dive~~ (JC278) Safety Plan shall describe how such criteria shall be applied and how such controls shall be implemented. JC278: deleted and modified.	(updated)の追加の必要性について検討致しました。Baseline SP は基本的な計画を規定するものですので、特別な場合のみ原則の変更を行うことは避け、作業に必要な計画は、Particular SP に記載すべきと考えます。他と統一するためこの(2)の(updated)の追記はをしないことを提案致します。	(updated) の削除と 1.7.7(4)の追記を提案します。	(岡本)Baseline SP は最初に作成して持っておくだけのドキュメントではなく、活用して Update していく過程で進歩させるべきものです。従って、この部分はご提案どおりの内容で結構ですが、1.7.7 に(4)としてその趣旨の規定を追加してください。(左欄に追記が提案されているのはその趣旨と理解しております)
74.	10.5.1 (2)	(2) Workboats, diving equipment, work tools and other facilities are defined as Contractor's Equipment and shall therefore comply with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*]. (JC281) JC281: Bette to also refer to JSSS 4 since this relates to Contractor's Equipment?	1.35 が機器施設を全体的に網羅していますことから、追加での規定は不要と考えます。 MD stated not really necessary as it will then also be necessary to add Chapter 6, whereas the reference to JSSS 1.35 covers all.	左記の理由で追加しないことに致します。	OK
75.	106.1 (5) (a) (ii)	(ii) …tank straps, air valve, (JC284) communication device, watch,… JC284:1 次 Regulator とは異なるものでしょうか。Is "air valve" different form first stage regulator?	次のような説明がありました。 MD: Yes, it is different. The "air valve" is the air tank valve which is separate and additional to the first and second stages.	左記のとおりで原案とおりと致します。	OK？
76.	10.7.2 (4)	(4) The HSO and DPIC shall ~~determine whether~~ secure that (JC287) the recompression JC287: revised and added.	英語の使用上の観点から"secure"の代わりに"ensure"の使用を提案致します。 MD stated if changed better to change to "ensure that".	左記の理由で"ensure"を使用します。	OK

“throughout Time for Completion” or “until Taking-over Certificate (TOC) is issued” ?

“Time for Completion” is defined in GC1.1.3.3 as “the time for completing the Works...calculated from the Commencement Date”. Contract Data (or Appendix to tender) usually provides a specific number of days to fix the Time for Completion (e.g. “365 days (from the Commencement Date)”, etc.). So, whatever happens, it is a fixed period of time.
On the other hand, the timing of issuance of TOC depends on performance of the Contractor. It is possible that the Contractor completes the Works and the TOC is issued much before the end of the Time for Completion. In such a case, it would be excessive to require the Contractor to continue to respect the contractual obligations during the period between the issuance of TOC and the end of the Time for Completion.



Then, do we still have to say “throughout the Time for Completion”?
e.g. JSSS 2.1.7 (1)
The Contractor shall monitor the working environment and prepare regular daily, weekly and monthly records of dust, noise, air and water quality, inadequate natural ventilation, rainfall, snowfall, temperatures, humidity, wind speed and direction regularly **throughout the Time for Completion of the Works.**

Deletion of long titles to make them consistence proposed by NK on 20200914
Revision for final by NK discussed in the meeting with JICA on 20200911
Nos in comments are those in JICA confirmation list A2.

For Final by JICA/NK

JICA STANDARD SAFETY SPECIFICATION FOR PROJECT IMPLEMENTATION UNDER JAPANESE ODA

Japan International Cooperation Agency (JICA)

14th September 2020

Prepared: DCI for NK
Issue: FR3
Date: 14/9/2020

ACKNOWLEDGEMENTS

JICA have referred to other publications during the preparation of this document and parts of such other publications have been used in the preparation hereof. JICA acknowledges and gives credit to these sources/publications which include:

1) Japanese Acts, Orders and Ordinances including:

Industrial Safety and Health Act

Order for Enforcement of Industrial Safety and Health Act

Ordinance on Industrial Safety and Health

Safety Ordinance for Cranes

Ordinance on Safety and Health of Work under High Pressure

Ordinance on Prevention of Anoxia, etc.

Ordinance on Prevention of Hazards Due to Dust

Explosives Control Act

Order for Enforcement of Explosives Control Act

Ordinance on Explosives Control

2) OSHA Standards as written in Code of Federal Regulation (29 CFR) and published by the Occupational Safety and Health Administration, U.S. Department of Labor.

3) Construction (Design and Management) Regulations 2015, published by the UK Health and Safety Executive.

4) Conditions of Contract for Construction for Building and Engineering Works Designed by The Employer (Multilateral Development Bank Harmonised Edition June 2010) published by Fédération Internationale des Ingénieurs-Conseils (FIDIC)

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JICA STANDARD SAFETY SPECIFICATION (JSSS)

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CHAPTER 1: GENERAL REQUIREMENTS

1.1 SAFETY DECLARATION

1.1.1 Adopting the slogan "SAFETY FIRST", the Contractor shall proactively aim to achieve "Zero-Accident" by applying the highest achievable standards of health and safety management.

1.1.2 A Safety Declaration shall be submitted with the Bid, declaring the Bidder's commitments and obligations, in accordance with JSSS Annex 1.3 [*Additional Contractor Forms*], Form JSSS/BSD - Bidder's Safety Declaration.

1.2 GENERAL REFERENCE NOTES

1.2.1 For Definitions, abbreviations and standards contained in JSSS, refer to JSSS Annex 1.1 [*Definitions and Abbreviations*].

1.2.2 The following further general reference notes apply to the content of JSSS:

(1) References to "Bid" and "Contract" and to "Bidder" and "Contractor" shall be interchangeable according to the context of their use. "Bid" and "Bidder" shall become "Contract" and "Contractor" after the Contract Agreement has been executed.

~~(2) References to "Laws of the Country" shall include all safety standards under such Laws and shall also include references to Laws of any other jurisdiction that may be stated in the Contract Data.~~

(3) Any reference to "Safety" unless otherwise evident from the text shall also be construed as reference to "Health and Safety".

(4) Any reference to academic, educational or vocational qualification within this document, shall mean a valid qualification demonstrated by a certified true copy of a diploma, degree, or other official certification issued by an acknowledged educational institution of the Country or an equivalent alternative certification issued by an acknowledged educational institution of another country.

(5) Unless otherwise stated in JSSS, any reference in JSSS to the Site, shall also be deemed to include other places (if any) where the Contractor intends to execute or is executing the Works including for example offsite storage, fabrication and assembly areas and any other working areas outside the Site boundary.

(6) JSSS requires the provision of safety management services and facilities by the Contractor to Contractor's Personnel and unless otherwise stated this shall also be deemed to include the provision by the Contractor of the same services and facilities (including for example training, accident response, healthcare, ~~provision of PPE~~, records, reports, control of hazards and risks, use of Temporary Works, and the like) to any Subcontractors, suppliers and others for whom the Contractor is responsible including Employer's Personnel and all other persons that are entitled to be on the Site.

(7) Any reference in JSSS to "relevant authority" or "relevant authorities" shall mean one (1) or more legally constituted public authorities that own or have legal jurisdiction over the work or property concerned.

(8) JSSS shall form a part of the Contract for the Works and therefore the definitions contained in the Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer, Multilateral Development Bank Harmonised Edition June 2010, General Conditions together with the Particular Conditions Part A - Contract Data and Part B - Specific Provisions, as applied to that Contract, apply equally and are used in JSSS.

Unless specified otherwise or instructed by the Engineer, the issue of JSSS to be used for the Contract shall be that which is applicable at the Base Date.

コメントの追加 **[SS1]:** No. 2
JICA agreed to delete (2) as NK and MD discussed.

コメントの追加 **[SS2]:** No. 3
JICA commented provision of PPE to the Employer is not recommendable.
NK agreed to delete this as special PPE shall be provided by the Contractor at the Site.

1.3 INCORPORATION OF JSSS INTO THE CONTRACT

1.3.1 JSSS shall form a part of the Safety Specification which, in turn forms a part of the Specification. The Safety Specification shall have priority over the other parts of the Specification in respect of health and safety matters. Within the Safety Specification, the Particular Safety Specification shall have priority over JSSS.

1.3.2 The Annexes to JSSS 1: General Requirements shall be read and construed as an integral part of JSSS.

1.4 COMPLIANCE WITH JSSS AND OTHER REGULATIONS

1.4.1 JSSS specifies the minimum health and safety requirements to be complied with by the Contractor throughout the execution of the Works.

1.4.2 JSSS shall not limit the Contractor's statutory or regulatory duties and responsibilities under the Laws of the Country and/or the specific health and safety requirements of the Contract.

1.4.3 The Contractor shall comply fully with the requirements of the Safety Specification.

1.4.4 If there are no or insufficient safety provisions in the Laws of the Country, in JSSS or in the Particular Safety Specification for the particular part of the Works, the Contractor shall propose suitable internationally acceptable safety regulations for the Engineer's consent.

1.4.5 Specified Standards

(1) Unless otherwise instructed by the Engineer, a reference to any standard (hereinafter deemed to include specified safety regulations or codes) shall mean a reference to the latest issued edition of that standard as at the Base Date.

(2) Standards specified in JSSS can be substituted with an equivalent alternative in following manner;

(a) The Contractor submits a formal request with particulars to the Engineer, and

(b) The Engineer gives a consent to the substitution,

(c) only if he considers such alternative is internationally acceptable and equivalent or higher than the standard in JSSS.

(3) Application of detailed parts of any standards specified in JSSS may be waived at the formal request of the Contractor, only if the Contractor justifies with supporting particulars that those detailed parts are not relevant to the Contract and the Engineer gives his consent to such Contractor's request.

(4) Where JSSS refers to the standards of other countries, such reference is only to the technical requirements contained in such standards and not to any related Laws or legal enforceability of any of those countries.

1.4.6 Where there is any reference to OSHA and unless otherwise evident from the text, the words "team leader", "supervisor", "supervision", "superintendent" and the like shall be collectively construed as reference to the appropriate member of the Contractor's Personnel. Any reference to the "safety and health manager of the Contractor" and the like shall be construed as reference to the HSO and "The construction plan and safety and health plan", shall be construed as the "Method Statement" and "Safety Plan", respectively.

1.4.7 If any ambiguity or discrepancy is found in or between the various Chapters of JSSS or any reference documents and JSSS, the Engineer shall issue any necessary clarification or instruction. For the purposes of interpretation:

(1) The requirements of JSSS 1: General Requirements, shall prevail over the requirements of other Chapters of the document.

(2) JSSS 2 to 6 contain requirements which are of general application and the content of each shall apply to content of all others unless otherwise stated or unless the context is

otherwise clear.

1.4.8 Unless otherwise stated in JSSS or in the Particular Safety Specification, the Contractor shall comply with the requirements of JSSS throughout the execution of the Contract.

1.4.9 The Contractor shall fully inform his personnel, his Subcontractors, suppliers and consultants and all other parties who are associated with the Works of the existence, content, purpose and objectives of JSSS.

1.5 CONTRACTOR'S SAFETY MANAGEMENT SYSTEM

1.5.1 The Contractor shall institute a health and safety management system in accordance with ISO 45001.

1.5.2 Alternatively, the Contractor may institute his own safety management system and regularly conduct audits in accordance with JSSS 1.17 [*Compliance Monitoring and Auditing*].

1.5.3 The safety management system shall be proposed as a part of the Contractor's Safety Plans to the Engineer for his consent.

1.6 CHECKING AND VALIDATION OF SUBMISSIONS

1.6.1 The Contractor shall demonstrate that his internal procedures for checking and validation of all submissions properly function through written confirmation and signature of each of the Contractor's responsible personnel, including for example the Contractor's Representative, HSO, Temporary Works coordination, design and supervision staff and any independent checkers as appropriate. This requirement relates to all submissions for the safety, including Safety Plans, Method Statements, Temporary Works (such as drawings, designs and calculations) and of all supporting documents.

1.7 CONTRACTOR'S SAFETY PLANS

1.7.1 The Contractor shall prepare Safety Plans for the Works showing the Contractor's proposed health and safety management policies, systems and plans specifically prepared for all parts of the Works.

1.7.2 The Safety Plans shall set out or refer to all the health and safety requirements:

(1) That are stated in JSSS.

(2) That comply with the Contractor's health and safety obligations under the Laws of the Country and the Contract.

(3) That are necessary to effect and maintain a healthy and safe working environment for all Contractor's Personnel.

1.7.3 The Contractor shall be required to prepare and submit the Safety Plans principally at three (3) stages:

(1) Bid Stage Safety Plan (Outline Overall Safety Plan).

(2) Baseline Safety Plan (Updated Bid Stage Safety Plan).

(3) Particular Safety Plans (Separate plans if necessary for particular parts of the Works).

1.7.4 The Safety Plans shall ultimately provide an accurate and comprehensive description of the Contractor's arrangements to ensure that health and safety management is maintained at a high level.

1.7.5 Submission of any Safety Plan and inclusion in the Bid or Contract or any further submission to the Engineer, shall not place any limit upon the Contractor's obligations. Any additional requirements as determined by the Contract or consequent to instructions of the Engineer or by requirements at the Site, shall be complied with by the Contractor under his own responsibility.

1.7.6 Bid Stage Safety Plan:

(1) This shall be an outline plan, containing indicative content for all of the subjects listed in JSSS Annex 1.2 [*Content of Bid Stage Safety Plan*].

(2) The plan shall demonstrate that the Bidder has a clear understanding of the health and safety requirements for the Works and contain clear and sufficient detail of each item to indicate the Bidder's intentions, so that this can be understood and properly evaluated.

1.7.7 Baseline Safety Plan

(1) This shall be submitted within twenty-eight (28) days after the Commencement Date and before commencing any work at the Site.

(2) This shall be an updated Safety Plan for the whole of the Works showing the Contractor's proposed health and safety management policies, systems and plans etc. specifically prepared for all parts of the Works.

(3) This shall be based upon the Bid Stage Safety Plan, further developed as necessary by the HSO to provide a comprehensive overall Safety Plan demonstrating the Contractor's intended compliance with the Contract.

(4) If, at any time, the Engineer gives notice to the Contractor that the Baseline Safety Plan fails (to the extent stated) to comply with the Contract or to be consistent with the Contractor's stated intentions, and that cannot be corrected by the issue of a Particular Safety Plan, the Contractor shall submit a revised Baseline Safety Plan to the Engineer in accordance with this Clause.

コメントの追加 [SS3]: JICA requested to add (4) which was not shown in the last submission but I showed this to add this (4).
NK agreed to add this.

1.7.8 Particular Safety Plans

(1) These shall be prepared as necessary to suit changing circumstances or conditions at the Site, or following the issue of Method Statements, or where considered necessary by the HSO or when required by the Engineer.

1.7.9 Procedures for Submission and Review

(1) The Contractor shall submit the Baseline Safety Plan and the Particular Safety Plans showing details of the health and safety arrangements which the Contractor proposes to adopt for the execution of the Works or any part of the Works.

(2) The Contractor shall submit:

(a) The Baseline Safety Plan in accordance with JSSS 1.7.7 [*Baseline Safety Plan*]; and

(b) The Particular Safety Plans by the date fourteen (14) days prior to the commencement of each particular part of the Works where sufficient detail has not been included in the Baseline Safety Plan and/or within fourteen (14) days after the date of the Engineer's request.

(3) Requirements for response (if any) by the Engineer and any re-submission by the Contractor and, shall be as follows:

(a) The Engineer may review the Safety Plans and may give notice of non-compliance to the Contractor stating the extent to which the Safety Plan does not comply with the Contract. Within fourteen (14) days after receiving any such notice the Contractor shall rectify any non-compliance and resubmit to the Engineer; and

(b) If the Engineer gives no such notice of non-compliance for the original Safety Plan within twenty-one (21) days of the date of receipt or for the resubmitted within fourteen (14) days of receipt, the Contractor shall proceed in accordance with the Safety Plan subject to complying with his other obligations under the Contract.

1.7.10 The Contractor shall maintain records and make reports in accordance with JSSS and the applicable health and safety regulations, and further comply with any reasonable requests by

the Engineer (if any).

1.7.11 Compliance with the Safety Plan and JSSS shall not relieve the Contractor from any duty, obligation or responsibility under or in connection with the Contract.

1.7.12 The Contractor shall also consider the opinions of his workers in preparing Safety Plans or updated Safety Plans.

1.8 RISK ASSESSMENT

1.8.1 In performing risk assessments, the Contractor shall find and correct all potential risks and hazards primarily by trying to eliminate or reduce such risks and hazards through making feasible changes in working conditions rather than relying on PPE.

1.8.2 The Contractor shall fully inform Contractor's Personnel of hazards and risks on the Site.

1.8.3 The procedural flow of risk assessment shall be as follows.

(1) Identifying hazards.

(2) Evaluating risks.

(3) Determining measures of risk reduction or elimination.

1.8.4 The procedural flow for risk reduction measures shall be as follows with earlier listed items having higher priority:

(1) Removal of hazards such as eliminating dangerous methods of construction.

(2) Changing to a safer construction method and alternating to low risk processes, operations, materials or equipment.

(3) Engineering measures.

(4) Management measures including improving skills with additional training.

(5) Use of PPE.

1.9 CONTRACTOR'S METHOD STATEMENTS

1.9.1 The Contractor shall prepare Method Statements for all parts of the Works with details of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works.

1.9.2 Method Statements shall be developed taking account of the results of risk assessment in accordance with JSSS 1.8 [*Risk Assessment*] and include details of all Permanent Works and Temporary Works with supporting documents such as:

(1) Studies, investigations and designs.

(2) Structural calculations and any other calculations.

(3) Specifications and technical details.

(4) Proposed construction procedure, sequence and method.

(5) Construction resources including superintendents, workers, Operation Leaders and Contractor's Equipment.

(6) Inspection and monitoring plan.

1.9.3 The Contractor shall demonstrate in the Method Statements that he has put internal procedures in place to encourage the systematic approach to performing the Works in an efficient, safe and environmentally compliant manner.

1.9.4 The Contractor shall submit Method Statements showing details of the arrangements and methods which the Contractor proposes to adopt for the execution of any part of the Works. Whenever the Engineer requires further information, the Contractor shall submit the required information within fourteen (14) days of the request.

1.9.5 Requirements for submission by Contractor and response (if any) by the Engineer to Method Statements, shall be as follows:

(1) The Engineer may review the Method Statements and may give notice of non-compliance to the Contractor stating the extent to which the Method Statements do not comply with the Contract. Within fourteen (14) days after receiving any such notice the Contractor shall rectify any non-compliance and resubmit to the Engineer.

(2) If the Engineer gives no such notice of non-compliance for the original Method Statement within twenty-one (21) days of the date of receipt or for the resubmitted within fourteen (14) days of receipt, the Contractor shall proceed in accordance with the Method Statement.

(3) The Contractor shall submit a revised Method Statement whenever required by the Engineer or when any previous Method Statement for any part of the Works is inconsistent with actual conditions or requirements prevailing at the Site.

(4) The Method Statement shall be revised as necessary by the Contractor or the HSO and each revision shall be submitted promptly to the Engineer.

1.10 ENGINEER'S SAFETY REPRESENTATIVE

1.10.1 The Engineer may delegate his power and authority to any of his assistants at the Site who shall act as the Engineer's health and safety representative for the purpose of complying with any health and safety obligations under JSSS.

1.10.2 The terms of the appointment shall be in accordance with GC 3.2 [*Delegation by the Engineer*].

1.10.3 Whenever the term "Engineer" is used in JSSS this shall be deemed to include the resident engineer or any other assistant of the Engineer if so appointed in accordance with the terms of their delegated authority.

1.11 SAFETY COMPLIANCE INSTRUCTIONS FROM THE ENGINEER

1.11.1 Without affecting or diminishing the Contractor's responsibility under GC 4.1 [*Contractor's General Obligations*] and to ensure the adequacy, stability and safety of all Site operations and of all methods of construction, the Engineer shall observe the Contractor's performance at the Site and if in his opinion the Contractor is failing or has failed to carry out any part of the Works in accordance with the Safety Plan or other health and safety requirements of the Contract, the Engineer may give notice and instruct the Contractor to take necessary corrective and preventive measures to comply with the Contract.

1.11.2 If any part of the Works is considered by the Engineer to pose a danger and which in his opinion could result in an accident, the Engineer may instruct the Contractor to suspend such part of the Works under GC 8.8 [*Suspension of Work*] until the Contractor has advised the Engineer of the proposed corrective and preventive measures, obtained the Engineer's consent and implemented such measures to ensure that such danger is eliminated.

1.11.3 If an accident has occurred, the Engineer may instruct the Contractor to suspend the Works or any part of the Works under GC 8.8 [*Suspension of Work*] and not allow work to recommence until such time as:

(1) All circumstances have been investigated and the cause of the accident has been established by the HSO.

(2) Corrective and preventive measures have been formulated by the HSO and proposed to the Engineer.

(3) The Engineer's consent has been obtained for such measures.

(4) The measures have been implemented to ensure that no such accident can reoccur.

1.11.4 The actions arising as above shall be deemed to be the responsibility of the Contractor irrespective of the issue of any action or instruction by the Engineer.

コメントの追加 [SS4]: No. 8
No need to revise because JICA agreed to leave "may" for which NK explained in the meeting of 9/11 as discussed with MD and Hayashi.

1.12 HEALTH AND SAFETY OFFICER AT THE SITE (HSO)

1.12.1 Requirements for the HSO:

(1) The Contractor shall assign the HSO at the Site on or before the Commencement Date.

(2) The Contractor shall ensure that the Contractor's Personnel respect instructions issued by HSO in the health and safety aspects.

(3) If the named person is for any reason unavailable or if the appointed person fails to act as HSO and is removed from the Site, the Contractor shall submit the name and particulars of a suitable and equally experienced and qualified replacement to the Engineer for his consent.

(4) The HSO shall be an employee of the Contractor or a specialist health and safety consultant and unless otherwise specified in the Particular Safety Specification, the HSO shall be assigned full time upon the Works.

(5) The Contractor shall not revoke the appointment of the HSO or appoint a replacement without the prior consent of the Engineer.

(6) The HSO shall, where possible, be fluent in the ruling language of the Contract and also the language for communications stated in the Contract as defined in GC 1.4 [*Law and Language*]. It is acceptable for the HSO to use a translator for either or both of these languages.

(7) The HSO shall possess appropriate educational qualification for such position and (if so required by the Laws of the Country) shall be licensed or registered in the Country and perform such duties as are legally mandated.

(8) Where there is no requirement under the Laws of the Country the HSO shall have appropriate academic, educational or vocational qualification such as:

(a) An International Diploma issued by the National Examination Board in Occupational Safety and Health (NEBOSH) in UK; or

(b) A certification as a Certified Safety Professional (CSP) by the Board of Certified Safety Professionals (BCSP) in USA; or

(c) An equivalent alternative internationally recognised qualification covering health and safety and risk management.

(9) Unless otherwise specified in the Particular Safety Specification, the HSO shall have minimum five (5) years' work experience in the construction industry of which minimum two (2) years shall be in health and safety management.

(10) The HSO shall be a person that the Contractor considers is qualified, experienced and able to perform the duties competently and his appointment shall be subject to receiving the consent of the Engineer.

1.12.2 Supporting Personnel

(1) The Contractor shall also appoint such further supporting personnel as the HSO may from time to time deem necessary or as may be instructed by the Engineer, to permit the HSO to perform his duties.

(2) Such further supporting personnel may include Operation Leaders and/or other senior specialist and qualified Contractor's Personnel.

(3) Irrespective of any such appointment the HSO shall remain singularly responsible for the actions of such supporting personnel in terms of health and safety management.

(4) Any reference in JSSS to the HSO performing inspections or the like for the health and safety aspects of any parts of the Works, shall be understood to include any inspections performed by any of these supporting personnel on behalf of the HSO and for which the

HSO shall remain responsible.

(5) The HSO shall prepare an internal procedure for the management of his supporting personnel, to ensure that:

(a) Supporting personnel are made aware of the requirements for any inspection and the details thereof;

(b) Supporting personnel immediately advise the HSO of any unsafe conditions with recommendations to prohibit the start or to stop or to change safety practices for the particular work; and

(c) Communications and submissions between HSO and supporting personnel are efficient, timely and clear.

Following implementation and compliance with the above procedure, the HSO shall sign all inspection records as if the inspection has been carried out by the HSO.

(6) Where the Works or any part of the Works is to be performed in shifts or in excess of normal working hours, or over an extensive working area or where major works are being undertaken simultaneously, or like circumstances, the Contractor shall appoint additional qualified supporting personnel for the HSO all as necessary to ensure that the HSO is always able to perform his duties efficiently and effectively and so that health and safety management is not adversely affected.

1.12.3 Inspections

(1) The HSO shall be responsible for ensuring:

(a) That all working areas are inspected on a regular basis (at least once every working day or as otherwise required by JSSS) to detect if any unsafe practices, works or conditions exist and that all required safety measures are in place;

(b) That if such unsafe practices, works or conditions are found to exist, then to immediately issue instructions to all affected persons and immediately implement corrective measures in cooperation with such personnel or if this is not possible then to temporarily stop all construction activity on that part of the Works until such corrective action has been taken; and

(c) That all inspection requirements of JSSS are complied with including the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

(2) Any site inspections attended by the HSO, may also include the attendance of the Engineer at the option of the Engineer.

1.13 HSO - SCOPE OF DUTIES AND AUTHORITY

1.13.1 The HSO shall devote his full time and attention to maintaining health and safety upon the Works and protecting against accidents.

1.13.2 The particular scope of duties and authority of the HSO shall cover (but shall not be limited to) the following:

(1) Preparation and submission of Safety Plans, implementation, evaluation, improvement and revision thereof.

(2) Preparation of monthly schedule of health and safety management activities, informing the Contractor's Personnel.

(3) Regular (daily) inspections of the Works at the Site to ensure the Contractor's compliance with the Safety Plan.

(4) Temporarily stopping the Works or any part of the Works following any accident or where the HSO considers it unsafe to continue or where there is unsafe behaviour or

practices of the Contractor's Personnel or any non-compliance with the Safety Plan.

(5) Temporarily stopping the Works or any part of the Works where the Engineer so instructs in accordance with JSSS 1.11 [*Safety Compliance Instructions from the Engineer*].

(6) Investigating accidents, establishing cause, formulating and implementing preventive measures to avoid risk and prevent reoccurrence.

(7) Preparing proposals, reporting and consulting with the Engineer, especially when an accident occurs or any risk or hazardous situation is likely.

(8) Instructing Operation Leaders in the health and safety aspects of their work including requirements for inspection and confirmation of results to HSO.

(9) Instructing the Contractor's Personnel to take improvement measures for maintaining health and safety and preventing accidents.

(10) Assisting with the selection and assignment of workers and other Contractor's Personnel, including ascertaining the physical and mental health, age and capability in consideration of the nature of work to be carried out.

(11) Planning and implementation of various training and education implementation plans.

(12) Creating and implementing procedures for monitoring and maintaining accident and safety statistics, including fatalities, lost time records and near-miss cases.

(13) Preparing regular internal and external reports on health and safety activities.

(14) Hazard prediction activity.

1.14 PROCEDURE FOR RESUMING THE WORKS

1.14.1 If the Engineer has issued an instruction under JSSS 1.11 [*Safety Compliance Instructions from the Engineer*] or if the HSO has temporarily stopped the Works or any part of the Works in accordance with JSSS 1.13 [*HSO - Scope of Duties and Authority*], then, unless otherwise instructed by the Engineer, the procedure for resuming the Works or any part of the Works, shall be as follows:

(1) The Contractor (represented by the HSO) shall investigate and establish the cause, formulate preventive measures to ensure that the risk is avoided and accident cannot occur/reoccur.

(2) The Contractor (represented by the HSO), shall prepare and submit his proposal describing the investigation, cause and preventive measures to the Engineer.

(3) The Engineer ~~may~~ shall review the Contractor's proposal and may give notice of non-compliance to the Contractor stating the extent to which the proposal does not comply with the Contract. Within seven (7) days after receiving any such notice the Contractor shall rectify such non-compliance and resubmit to the Engineer.

(4) If the Engineer gives no such notice of non-compliance for the original proposal within seven (7) days of the date of receipt or for the resubmitted proposal within seven (7) days of receipt, the Contractor shall resume the Works or part thereof in accordance with the proposal by giving three (3) days' notice in writing of the resumption date.

To be proactive, the Engineer may give consent at any stage within the above stated time scales.

(5) The Contractor resumes the Works or part of the Works on the due date.

(6) The Contractor verifies the effectiveness of the preventive measures and informs the Engineer.

(7) The Contractor carries out a risk assessment and revises the Safety Plan and Method Statements as necessary.

コメントの追加 [SS5]: "may" is replaced with "shall" because involvement of the Engineer is necessary after accident to avoid recurrence of accident.

コメントの追加 [SS6]: SS: I think this " may" be left as (4) states for the case of no such notice is given.

1.15 CONTRACTOR'S SAFETY MANAGEMENT ACTIVITIES

1.15.1 The Contractor shall faithfully implement the Safety Plan performing all necessary management activities to ensure total compliance.

1.15.2 In addition to the tasks of the HSO described above, the Contractor's health and safety management activities shall include (but are not limited to):

(1) Overall Safety Management Activities:

(a) Instruction on safety matters in the Toolbox Meetings (TBM);

(b) Pre-work meetings, pre-start meetings, schedule meetings and other internal meetings; and

(c) Monitoring the implementation of the Safety Plan.

(2) Daily Safety Management of Contractor's Personnel:

(a) Instruction and management on health and safety at general morning meetings, pre-work meetings, TBM;

(b) Providing specific advice and instructions to all Contractor's Personnel on their assigned work tasks in advance of starting so that all workers are aware of the requirements of the Method Statements and Safety Plan including work place, scope, methods, PPE, timing and safety procedures;

(c) Instruction and management of traditional Japanese cleanliness safety campaigns known in Japan as:

5S ACTIVITIES where: Seiri = sorting, Seiton = tidying, Seiso = cleaning, Seiketsu = cleanliness and Shituke = discipline;

(d) Instruction and management of safety education and training;

(e) Instruction and management of all safety measures; and

(f) Site Safety Inspections.

1.16 JOINT SITE SAFETY INSPECTIONS

1.16.1 In addition to the HSO's own daily Site Safety Inspections, the HSO shall conduct regular Joint Site Safety Inspections with the Engineer. Respective safety staff may also attend.

1.16.2 Frequency of Joint Site Safety Inspections shall be at least once a week.

1.16.3 Where any safety risks are detected during the inspections, the Contractor shall take immediate action.

1.16.4 The Engineer may be invited or may choose to participate in the Contractor's daily site safety inspections which will then be deemed to be a Joint Site Safety Inspection.

1.16.5 The Contractor shall prepare a report of each Joint Site Safety Inspection and submit this to the Engineer within seven (7) days after the inspection. A further copy shall be included in the Contractor's monthly progress report.

1.17 COMPLIANCE MONITORING AND AUDITING

1.17.1 The HSO shall develop and implement systems to ensure that compliance with the Safety Plan is ensured. Such compliance shall be monitored efficiently and transparently at all times, for which purpose the Contractor shall:

(1) Create checklists for monitoring.

(2) Carry out regular and random inspections.

(3) Analyse unsafe or non-compliant conditions and determine the effective measures in ensuring safety and minimising accidents.

(4) Create storage and filing systems for the monitoring records.

(5) Copy safety information to the Engineer as may be necessary for the Engineer's file if so requested by the Engineer.

1.17.2 Safety inspections are intended to search for risks and hazards which present a threat to safe working.

1.17.3 The Contractor shall also carry out regular health and safety audits, to ascertain if the Contractor's Safety Plan and health and safety management systems are working by focussing basically on the following five questions:

(1) Does the Safety Plan cover all regulatory and construction industry best practice requirements?

(2) Are the Safety Plan requirements being met?

(3) Is there documented proof of compliance?

(4) Is health and safety training effective?

(5) Is the Contractor's health and safety management system working effectively?

1.17.4 The persons or team designated to conduct the audits should take a fact-finding approach to gather data and members shall be familiar with the Safety Plan and the nature of the Works.

1.17.5 The audit procedures shall be prepared by a senior member of the Contractor's head office health and safety section and shall require the consent of the Engineer.

1.17.6 The audit shall be headed by a senior member of the Contractor's head office health and safety section.

1.17.7 Audits may be outsourced by the Contractor to a health and safety company subject to obtaining the consent of the Engineer.

1.17.8 The HSO may attend audits but only in an advisory capacity.

1.17.9 The Contractor shall invite the Engineer to attend in the capacity of a witness ensuring that the audit is being carried out effectively and with a balanced, fair and non-biased approach.

1.17.10 The health and safety audits are primarily to check the effectiveness of the Safety Plan, the Contractor's health and safety personnel and the Contractor's health and safety management systems. The Audits shall not replace the regular health and safety inspections.

1.17.11 The audits shall be conducted at least twice every year and without giving notice to the Contractor's Personnel or others when any audit is to take place.

1.17.12 An audit report shall be prepared by the leader of the audit team, detailing the findings of the team and submitted to the HSO, with a copy to the Engineer within seven (7) days after the audit. The report shall be signed by all attendees of the Contractor to certify their agreement to the content and to any recommendations for improvement.

1.17.13 The HSO shall analyse the findings of the audit, revise the Safety Plan and change health and safety management practices as necessary to ensure the required improvement. The Engineer shall be fully informed of all such revisions and changes.

1.18 PROPER PLACEMENT OF CONTRACTOR'S PERSONNEL

1.18.1 To a varying extent, many types of construction works are inherently dangerous and accordingly the Contractor under his duty of care must ensure that risks arising from all such potential dangers are avoided and Contractor's Personnel consequently protected.

1.18.2 In compliance with GC 6.9 [*Contractor's Personnel*], the Contractor shall assign only those personnel who are appropriately qualified, skilled and experienced in their respective trades or occupations. Contractor's Personnel shall also be suitable and capable of performing the work tasks for which they are selected in consideration of their physical fitness, mental condition,

age and capability, all shall be equipped with correct PPE, tools, equipment and safety equipment.

1.18.3 Workers and unskilled workers shall never be assigned to any work on Site on their own, all shall be assigned in groups and each work group must always include an Operation Leader to ensure compliance with the Contractor's safety regulations.

1.18.4 The correct grades and numbers of Contractor's Personnel shall be assigned to respective work tasks and reasonable times and durations and support facilities shall be afforded by the Contractor to promote the safe and effective discharge of duties.

1.18.5 The HSO shall countersign all records to certify his confirmation that each member of the Contractor's Personnel is appropriately qualified, skilled and experienced in their respective trades or occupations prior to their placement. These records shall be made available for inspection by the Engineer.

1.18.6 Suitability of Contractor's Personnel and their work assignment shall be assessed by the Contractor with the assistance of the HSO in consideration of:

(1) Work content and work environment.

(2) Educational or vocational qualifications, practical experience, skill training and eligibility for category, title, rank or position by virtue of their achieved and demonstrated capability.

(3) Physical and mental health condition upon commencement of employment and on a regular basis before daily work starts.

(4) Allocation of an achievable and safe work volume and time.

(5) Allocation of suitable work to older workers and also to workers under 18 in compliance with GC 6.21 [*Child Labour*].

1.18.7 If the Laws of the Country require operating, supervising or management staff or any other Contractor's Personnel to have a licence, particular academic, educational or vocational qualification, diploma, registration or certification for any of their services or operations at Site, the Contractor shall ascertain that all such Contractor's Personnel possess such documents.

1.18.8 The Contractor shall ascertain the authenticity and validity of licenses and all other documentation for Contractor's Personnel and if necessary shall independently test all personnel to ascertain that they do possess sufficient knowledge, academic, educational or vocational qualification, experience and skills.

1.18.9 The Contractor shall implement an identification (ID) pass system whereby all Contractor's Personnel carry ID passes with name, photograph, blood type, official ID number and statement of the skill and position for which the worker is qualified and assigned. This shall be clearly displayed by the person and be available for inspection and validation by the Engineer at all times. If any of the Contractor's Personnel is found not to have such valid ID for the position upon which he is assigned, the Engineer will instruct that person directly to stop work immediately, contact the HSO immediately and instruct that the HSO resolves the situation without delay by immediately removing the offending person from the particular work being undertaken and assigning a suitable replacement, unless otherwise instructed by the Engineer.

1.19 SAFETY TRAINING GENERALLY

1.19.1 The Contractor shall conduct health and safety education and training for all the Contractor's Personnel.

1.19.2 The Contractor shall describe in the Safety Plan the outline of the health and safety training plans describing participants, time, teaching materials, policy for selecting trainers, etc. In addition, the Contractor shall submit full details of all health and safety training to the Engineer for information before the start of any training.

1.19.3 Training shall be provided free-of-charge to all participants and conducted during normal working hours, all trainees shall be paid their normal wages during training and the Contractor shall bear all necessary associated costs and expenses.

1.19.4 Training shall be provided in a language which the persons to be trained fully understand (i.e. the language of the persons to be trained or the language for communications as defined in GC 1.4 [*Law and language*] as appropriate.

1.19.5 Training Personnel

(1) Trainers (which description shall include teachers and educators also) can be personnel employed by the Contractor or external trainers for whom the Contractor shall remain responsible, all experienced, academically, educationally or vocationally qualified and (if required by the Laws of the Country), formally registered as trainers, teachers and educators.

(2) All trainers shall be fluent in the language to be used in the training. Where necessary, proficient translators familiar with construction safety terms shall be provided by the Contractor.

(3) In case of absence of availability of suitable trainers in the Country, the Contractor shall mobilise personnel from other countries whom the Contractor considers possess the necessary academic, educational or vocational qualification, ability and experience, subject to receiving the advance consent of the Engineer.

1.19.6 Records of Education and Training

The Contractor shall create and maintain records of all trainees, showing full details of training subjects and their capability, achievements etc., and all shall be made available for the inspection of the Engineer.

1.20 SAFETY INDUCTION TRAINING

1.20.1 Safety induction training shall be provided by the Contractor for all Contractor's Personnel, any Subcontractors, suppliers and others for whom he is responsible, including the Employer's Personnel and all other persons who are entitled to be on the Site at the request of the Employer or Engineer.

1.20.2 The safety induction training shall include classroom-based training course and practical on-site demonstration, in which the following subjects shall be covered:

(1) Responsible persons, chain of command and means of communication.

(2) Use of Contractor's Equipment, small tools and tackle, machinery, Temporary Works, Goods, materials; potential danger and required care.

(3) Working procedures generally.

(4) Inspections before starting and during execution of any work, reporting unsafe working conditions and equipment.

(5) Dangerous Work; General rules, locations, posting warning signs, precautions and general working requirements. Refer to JSSS 1.22 [*Dangerous Work*] for additional training requirements.

(6) PPE and other safety devices; use, handling and care, reporting worn, damaged or defective equipment.

(7) Maintaining all working areas in an orderly, tidy and clean condition at all times.

(8) Accidents; action, evacuation and treatment, basic first-response medical aid, reporting.

(9) Firefighting; actions, precautions and control.

(10) Health and safety rules.

(11) Causes and prevention of diseases and conditions which may be injurious to health that may occur in relation to the work concerned.

(12) Emergency Response Plan; evacuation and calling list.

(13) Other related health and safety matters.

1.21 SKILL TRAINING

1.21.1 The Contractor shall ensure that all Contractor's Personnel shall be appropriately qualified, skilled and experienced in their respective trades or occupations in accordance with JSSS 1.18.2.

1.21.2 The Contractor is also reminded of his obligations under GC 6.1 [*Engagement of Staff and Labour*] according to which the Contractor is encouraged, to the extent practicable and reasonable, to mobilise the local human resources with appropriate qualifications and experience. However, if the qualified, skilled and experienced Contractor's Personnel required by the Contract is not available in the Country or not available in the numbers or of the standards of for the periods required, the Contractor shall:

(1) Source and assign upon the Works Contractor's Personnel (of at least Operation Leader and skilled worker status) from other countries, and/or

(2) Recruit candidates in the Country and train them to provide the skill required to properly perform their assignments.

This shall be in such numbers and for such periods as are necessary to maintain the required standards of performance, quality, health and safety throughout the execution of the Contract.

(1) The Contractor shall test and qualify such personnel and provide them with formal written confirmation of their training, testing and academic, educational or vocational qualification, with copies provided to the Engineer if so requested by the Engineer.

(2) Outline of such training shall be submitted with the Bid Stage Safety Plan. Details of the training shall be further developed in the Baseline Safety Plan and onward.

(3) Skill Training may be omitted in full or in part for any Contractor's Personnel who, the Contractor has ascertained, hold valid academic, educational or vocational qualification and who are appropriately skilled and experienced in their respective trades or occupations in full compliance with GC 6.9 [*Contractor's Personnel*]. The Contractor shall report the names of any such Contractor's Personnel to the Engineer for his information.

1.21.3 Further Training of Operation Leaders and Skilled Workers

(1) Unless otherwise specified in the Particular Safety Specification and without limiting or changing the Contractor's obligations under the Contract, the Contractor shall be required to select candidates from his local skilled and unskilled workforce that he considers are suitable to act as future Operation Leaders and skilled workers, respectively.

(2) Training of Operation Leaders

(a) The Contractor shall ensure that his personnel work closely with and transfer necessary knowledge and skills via OJT to such candidates to develop their management abilities, skill levels and awareness of international safety and quality standards; and

(b) To compliment the OJT, the Contractor shall provide classroom-based training courses and assign qualified instructors to develop the ability, skills and awareness and also to pass on their knowledge in future to their working colleagues and compatriots.

(3) Training of Skilled Workers

(a) The Contractor shall ensure that his personnel work closely with and transfer

necessary knowledge and skills via OJT to such candidates to develop their skill levels and awareness of international safety and quality standards; and

(b) To compliment the OJT, the Contractor shall provide classroom-based training courses and assign qualified instructors to develop the ability, skills and awareness according to the work and also to pass on their knowledge in future to their working colleagues and compatriots.

(4) The Contractor shall develop the syllabus and teaching hours appropriately and submit details to the Engineer for his information. Wherever appropriate, the syllabus shall also include health and safety training to an international level of appreciation with a general introduction to OSHA and other applicable international safety standards and regulations.

1.21.4 Unless otherwise specified in the Particular Safety Specification, the Contractor shall not bring into the Country for use upon the Works any unqualified, unskilled or inexperienced foreign Contractor's Personnel.

1.22 DANGEROUS WORK

1.22.1. Examples of Dangerous Work

For clarity "Dangerous Work" shall also include the following examples:

(1) The delivery, storage and/or use of harmful, dangerous or explosive materials, chemicals, gases or the like to be used in the Works or for use in or which are the product of the manufacturing or treatment process of the finished Works or in Operational Areas.

(2) Welding work, hot cutting work or demolition work.

(3) Work in areas where Contractor's Personnel are already performing work that may become more hazardous if anyone other than authorised personnel enter, for example Scaffolding erection, use and dismantling, and areas where Contractor's Equipment is operating and the HSO considers there to be a risk of any accident.

(4) Work in areas where very hot or cold objects are being handled and/or the working area itself is extremely hot or cold.

(5) Work in areas where there is potential exposure to harmful radiation or ultrasound.

(6) Work in areas where the concentration of gases, dust and any other dangerous or harmful materials exceed the limits specified in JSSS 2.1 [*Work Environment*].

(7) Work in areas where Permanent Works or Temporary Works have not been performed completely or properly and/or which are therefore unsound, unstable or unsafe.

(8) Work in areas under, within or adjacent to existing buildings, roads, bridges or other structures which are unstable and/or unsafe and which pose risks to safety unless additional support and strengthening measures are implemented.

(9) Work in areas which may have been damaged and otherwise rendered dangerous by adverse climatic, natural or seismic conditions.

1.22.2. Particular care shall be taken by the Contractor when performing any Dangerous Work.

1.22.3. Contractor's Personnel who are to perform or be involved at the Site in the performance of Dangerous Work, in addition to the usual safety induction training, shall be given further special training according to the nature of the Dangerous Work upon which they are to be engaged so that they can safely perform such work.

1.22.4. The HSO shall check and certify that each of the trained workers are authorised to be engaged upon particular types of Dangerous Work, by issuing an official permit in accordance with JSSS 1.23 [*Permit to Work System – Dangerous Work*] that is to be worn conspicuously and be available for validation by the Engineer.

1.22.5. The HSO shall ensure where Dangerous Work is to be performed, that preparatory pre-work

inspections are carried out to investigate and assess the work to be performed and ascertain the conditions likely to be encountered. Such inspection work shall be carried out by specially trained personnel. The Contractor shall prepare safety procedures to ensure that any such inspection personnel are not placed at risk because of any unsafe environmental or other adverse or dangerous conditions.

1.22.6. A specially trained Operation Leader shall always be assigned to work full-time with every worker or team of workers engaged upon Dangerous Work.

1.22.7. The Contractor shall train and equip teams of selected workers at the Site for emergency rescue operation in accordance with JSSS 1.24 [*Accident Response Plan*].

1.22.8. The Contractor shall prepare and implement procedures for effective safety control of Dangerous Work. Such procedures may include zoning arrangements whereby different degrees of risk are separately categorised into different levels of requirement. The contents of this shall be included in the Method Statement and Safety Plan.

1.22.9. Signage shall clearly describe the Dangerous Work and state the reasons why the area is dangerous.

1.22.10. For measures for prohibiting entry, methods of demarcation and further definition of Dangerous Work, refer to JSSS 2.3 [*Prohibition of Entry*].

1.22.11. Hazardous Substances.

(1) If the Contractor during the execution of the Works, encounters and is required by the Particular Safety Specification or instructed by the Engineer to remove any Hazardous Substances (for example: asbestos and similarly dangerous or hazardous materials), the Contractor shall employ suitable specialists that are appropriately and specifically qualified, skilled and experienced in the safe and environmentally acceptable removal and disposal of the Hazardous Substances.

(2) The Contractor shall submit Safety Plans and Method Statements with respect to the removal and disposal of the Hazardous Substances to the Engineer in accordance with JSSS 1.7 [*Contractor's Safety Plans*] and JSSS 1.9 [*Contractor's Method Statements*].

1.23 PERMIT TO WORK SYSTEM – DANGEROUS WORK

1.23.1 The Contractor shall prepare and implement a "Permit to Work System" and a description of this shall be included in the Safety Plan.

1.23.2 The system shall be designed to control safety for Dangerous Work.

1.23.3 The system shall ensure that all foreseeable risks have been considered and that the required control measures for safe working have been implemented before any specific work is permitted to proceed.

1.23.4 Permits shall certify that workers are protected when they perform and workers shall sign the permit and register to show that they understand the risks and the precautions necessary.

1.23.5 The HSO shall assess the work and check safety at each stage and manage the Permit to Work System.

1.24 ACCIDENT RESPONSE PLAN

1.24.1 The Contractor shall be responsible for responding to and treating accidents at the Site in an efficient and dedicated manner with the provision of rescue and treatment services using trained personnel with experienced and qualified medical staff and adequate and equipped facilities at the Site.

1.24.2 Medical, first aid and related services and facilities at the Site for accidental injuries shall be made available free of charge for Contractor's and Employer's Personnel. If so specified in the Particular Safety Specification, such services and facilities shall also be made available free of charge for the family members of such Contractor's and Employer's Personnel.

1.24.3 The Contractor shall prepare an Accident Response Plan as a part of the Safety Plan.

1.24.4 The Contractor shall provide the following medical and first aid services and facilities on the Site:

(1) Appropriate first aid appliances, aids, instruments and medicines.

(2) Trained first aiders.

(3) Communication facilities and measures for Emergency Response.

(4) Medical facilities on the Site together with suitable medical equipment and consumables.

(5) Temporary water and power supply to maintain use during mains supply failure.

(6) Transportation to be provided to efficiently and carefully transport casualties to medical facilities on the Site or hospitals off the Site.

(7) Additional facilities specified in the Particular Safety Specification, if any.

1.24.5 Where the Site is located at an excessive distance from urban areas and/or where there is a lack of immediate availability of medical services and facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site to comply with his obligations as specified in the Particular Safety Specification and as are necessary to fully protect all relevant personnel.

1.24.6 The Contractor shall train selected Contractor's Personnel to perform emergency rescue in a safe manner in the event of any accident. Workers so trained are called upon in the event of any emergency to rescue any person(s) who may become trapped or injured or otherwise affected or incapacitated and provide suitable, specialist and appropriate first aid treatment. They shall be allowed to continue with their normal work when not required for emergency rescue.

1.24.7 Rescue equipment shall include respiratory protective equipment for rescue operations, where the nature of the Works would dictate, safety extraction belts/harnesses/ropes.

1.24.8 Workers trained for emergency rescue, in addition to normal first aid treatment, shall be trained to Cardiopulmonary Resuscitation (CPR) and also to operate an Automatic External Defibrillator (AED) in accordance with the requirements of JSSS 2.9 [*PPE and First Aid*].

1.24.9 Adequate first aid equipment and supplies shall in any case be readily available at the Site and as referred to in JSSS 2.9 [*PPE and First Aid*].

1.25 MEASURES AT THE TIME ACCIDENTS OCCUR

1.25.1 When an accident occurs, the HSO shall immediately discontinue the concerned work, inform the Engineer and take all efforts to:

(1) Safely locate and extract casualties.

(2) Provide first aid treatment at the Site.

(3) Implement Secondary accident prevention activities, including:

(a) Preserving the accident site, make safe and prohibit any personnel to engage in rescue activities who are not trained to do so;

(b) Discontinuing construction work related to or in the vicinity of the accident; and

(c) Implementing any further measures instructed by the Engineer.

1.25.2 Report of Accident Occurrence, Cause, Investigation, Result and Recurrence, Prevention Measures.

(1) At occurrence of any accident, the HSO shall promptly inform the Engineer and thereafter submit details of the accident within twenty-four (24) hours after its occurrence.

コメントの追加 [SS7]: No. 18
JICA commented "the Site" is defined in JSSS1.2.2(5) the Site, shall also be deemed to include other places (if any) where the Contractor intends to execute or is executing the Works including for example offsite storage, fabrication and assembly areas and any other working areas outside the Site boundary.

NK agreed to leave on the Site because the Site include places outside of the Site.

コメントの追加 [SS8]: No. 20
JICA want to write full spelling of these abbreviation at first come out even though they are provided in Annex. There is statement like Toolbox Meetings (TBM) in 1.15.2 (1) (a), so NK agreed JICA's request.

(2) Having investigated and established the cause of any accident, the HSO shall report the detail and conclusion of the investigation as soon as practicable.

(3) The accident report shall include details of the counter-measures to prevent any reoccurrence and shall be in the format included in JSSS Annex 1.3 [*Additional Contractor Forms*].

1.25.3 For resumption of work procedures, refer to JSSS 1.14 [*Procedure for Resuming the Works*].

1.26 EMERGENCY RESPONSE PLAN

1.26.1 To the extent reasonably possible, the Contractor shall keep himself fully informed at all times of likely forecasted climatic conditions, from TV, radio and internet and shall be aware when heavy winds, storms, rainfall or snowfall and electrical storms or other adverse climatic conditions are likely and can be reasonably anticipated.

1.26.2 The Contractor shall take all necessary measures to protect Contractor's Personnel, the Works and all Goods for incorporation therein from injury or damage caused by any such adverse climatic conditions, and to avoid, overcome or lessen the effects to a reasonable extent.

1.26.3 The Contractor shall keep all areas of the Site, free from surface water and ground water at all times and by whatever means are necessary. This shall include all newly exposed ground surfaces, excavated areas and/or excavations for structures, piling, trenches, pits, shafts, tunnels and the like, as necessary to ensure:

(1) The safety of all persons entitled to be on the Site, whether engaged in construction operations or otherwise on or in the vicinity of or adjacent to the Site.

(2) The safety and stability of the Works and Goods.

(3) The safety and stability of all ground surfaces, excavated areas and/or excavations for structures, piling, trenches, pits, shafts, tunnels and the like, to prevent landslides due to surface and/or underground water from rainfall and snowmelt, tidal water, ground water and any changes in ground water level, river or stream erosion, human activity and the like.

1.26.4 Where, due to the location of the Site, there is a risk of flooding, earthquake or volcanic activity, the Contractor shall take measures to prevent damage including damage from landslides and consequent injury, damage from such flooding, earthquake or volcanic activity.

Such measures to be implemented shall include:

(1) Avoiding the use of permanent or temporary earth dams, enclosures, containment structures, spoil heaps or the like where the effect of the above described climatic, seismic or volcanic conditions could weaken or destroy such structures and potentially create the consequent risk of danger to all relevant persons, including third parties and property not connected with the Works but potentially affected thereby.

(2) Provision of temporary support to all sides and soffits of excavations or portal of tunnelling of sufficient strength, durability and suitability.

(3) Provision of sufficient temporary drains and drain trenches to assist the flow of water and any further measures to prevent the effect of water entry to the Works, including pumping and provision of power for such measures.

1.26.5 Measures as required by the above shall be described by the Contractor in the Method Statements.

1.26.6 The Contractor shall prepare an Emergency Response Plan as a part of the Safety Plan.

1.26.7 The Emergency Response Plan, shall cover:

(1) Evacuation plan, showing evacuation routes and assembly points.

(2) Emergency communication facilities such as telephones, radios, transceivers,

loudspeakers, sirens, etc. Such facilities shall be inspected by the HSO and maintained at all times so that they can be utilised in any emergency.

(3) Emergency contact system.

(4) Use of existing and available medical and other related facilities.

(5) Emergency stocks of bottled water, lights, ropes, shovels.

The Contractor shall provide and maintain in a state of readiness such equipment described above, that will remain useable in the case of an emergency. Where applicable sufficient back-up power shall be provided when power may be knocked out, long-life batteries, power generators with fuel capacity to allow long term use and the like.

1.26.8 The emergency contact system shall describe measures for quickly establishing locations and methods of contact with a listing of the persons, organisations and departments, that need to be located and contacted in the event of an emergency.

The list shall be posted in a visible location in the Contractor's Site office with a copy in the Employer's and Engineer's Site offices so that all personnel are informed.

The emergency contact list shall include name(s) of the person(s) responsible for making the contact, relevant contact persons, all with their respective telephone numbers and where relevant their radio contact.

The list shall include contact details and any further relevant information for the following parties, and define the extent to which contact is to be made in accordance with the type of emergency:

(1) Employer's Personnel at the Site and also at their respective head office.

(2) Relevant government authorities and agencies, administrative agencies, police stations, ambulance and fire stations, and the like.

(3) Contractor's Personnel at the Site and also at the head office.

(4) Subcontractors personnel and the personnel of any other contractors or suppliers at the Site and also at the head office.

1.26.9 Unless otherwise specified in the Particular Safety Specification, the Contractor shall conduct Emergency Response training based on the Emergency Response Plan at least every six (6) months, including training all personnel at the Site on evacuation plan and emergency contact system.

Details of the training shall be included as a part of the Emergency Response Plan and included with the Safety Plan.

1.26.10 If and when an emergency occurs, the Contractor shall share necessary information amongst prescribed persons on the emergency contact list described above and take appropriate measures including work discontinuation, evacuation of workers, making the Works, all premises and Contractor's Equipment safe, etc., all as circumstances reasonably permit and as instructed by the Engineer.

1.27 CONTRACTOR'S SAFETY COMMITTEE AND REGULAR SAFETY MEETINGS

1.27.1 The Contractor shall create an internal Safety Committee to assist with promoting and maintaining effective health and safety management.

1.27.2 Members of the Contractor's Safety Committee shall include:

(1) Contractor's Representative.

(2) HSO.

(3) Medical and first aid staff.

(4) Contractor's senior site staff.

(5) Contractor's head office safety manager (as necessary).

(6) Subcontractors' representatives, health and safety personnel, site staff.

(7) Representative of labour union, if any.

(8) (If necessary) Representatives of the relevant government authorities and agencies.

(9) Any other necessary personnel.

1.27.3 The HSO shall be the chairperson of the Safety Committee.

1.27.4 The Contractor shall arrange regular Safety Committee Meetings for the purpose of sharing information regarding health and safety management among the Contractor's Personnel:

(1) Frequency of the meetings: At least once a month (until issue of the Taking-Over Certificate of the entire Works).

(2) Agenda:

(a) Accidents, fatalities, injuries occurred in the previous month and measures to be taken to prevent any reoccurrence;

(b) Monthly or weekly schedule of important health and safety matters;

(c) Feedback on the regular safety, coordination and other meetings with the Engineer;

(d) Safety instructions received from the Engineer;

(e) Items to be coordinated with police, fire department and other related organisations;

(f) Compliance and registration requirements under the Laws of the Country;

(g) Safety and health awards, media attention and the like;

(h) Hazards, safety and health problems identified by any members of the Safety Committee;

(i) Effectiveness of existing Safety Plans and suggestions for revision and improvement; and

(j) Other matters.

1.27.5 Report on the Safety Committee Meetings

The HSO shall prepare a report summarising the concerns raised and conclusions of all items listed in the agenda as above.

A copy of this report shall be submitted to the Engineer within seven (7) days after the meeting and a further copy shall be included in the Contractor's monthly progress report.

1.28 ENGINEER'S REGULAR SAFETY MEETINGS

1.28.1 The Engineer will arrange and host a regular safety meeting to be attended by representatives of the Employer and the Contractor for the purpose of sharing information regarding health and safety management among the representatives of the Employer and the Contractor. Parties present shall have the authority to represent the organisation they belong to on health and safety matters:

(1) Frequency of the meetings: Once a month (until issue of the Taking-Over Certificate of the entire Works).

(2) Agenda:

(a) Effectiveness of existing Safety Plans and suggestions for revision and

improvement;

(b) Monthly or weekly schedule of important health and safety matters;

(c) Accidents, fatalities, injuries in the previous month and measures to be taken to prevent any reoccurrence;

(d) Hazards, safety and health problems identified by any members of the Safety Committee;

(e) Status of resolution of previous problems;

(f) Items to be coordinated with police, fire department and other related organisations;

(g) Compliance and registration requirements under the Laws of the Country; and

(h) Safety and health awards, media attention and the like.

1.28.2 Report on the Engineer's Regular Safety Meetings:

(1) The Engineer shall prepare a report summarising the concerns raised and conclusions of all items listed in the agenda as above.

(2) A copy of this report shall be submitted to the Contractor and Employer within seven (7) days after the meetings.

(3) A further copy shall be included in the Engineer's Monthly Report submitted to the Employer.

(4) The Contractor shall act immediately upon any oral instruction which is a consequence of the Contractor's failure to comply with his obligations under the Contract.

(5) The Engineer shall issue a formal instruction for any variation requests.

1.29 PROJECT SAFETY COMMITTEE

1.29.1 On larger Projects with multiple contract packages, if so stated in the Particular Safety Specification, the Employer shall create a Project Safety Committee for the purpose of ensuring mutual understanding and effective implementation of health and safety management of the entire Project.

1.29.2 Unless otherwise agreed, the members of the Project Safety Committee shall include:

(1) The Employer.

(2) The Engineer(s).

(3) The Contractor's Representative(s) and HSO.

(4) Representatives and health and safety officers of all contractors.

1.29.3 The chairperson of the Safety Committee shall be the Employer.

1.29.4 The Project Safety Committee meetings periodically takes place as requested by the Employer. The Contractor shall participate in the same whenever requested by the Employer until issue of the Taking-Over Certificate of the entire Works.

1.29.5 The Employer shall prepare a report summarising the concerns raised and conclusions of all items discussed at the Project Safety Committee Meeting.

1.30 HEALTH AND SAFETY COORDINATION WITH OTHER CONTRACTORS

1.30.1 Refer to GC 2.3 [*Employer's Personnel*] and GC 4.6 [*Co-operation*] regarding the respective obligations and requirements for the Contractor regarding co-operation with:

(1) The Employer's Personnel.

(2) Any other contractors employed by the Employer.

(3) The personnel of any relevant authorities.

In relation to the above, the Employer shall ensure that all of the above personnel and contractors co-operate with the Contractor's efforts and that they take actions similar to those that the Contractor is required to take under relevant parts of GC 4.8 [*Safety Procedures*] and GC 4.18 [*Protection of the Environment*].

The Contractor shall provide sufficient information to the Employer who shall then ensure that all of the above personnel and contractors are fully informed of the Contractor's Safety Plan and that their personnel comply with the Contractor's Safety Plan.

When preparing the Safety Plan, the Contractor shall identify the hazards and assess the risks of all aspects. To do this properly, information (including Method Statements, risk assessments and safety plans) may be needed from other contractors who will be working at the Site. The Employer shall therefore ensure that the Contractor is provided with all such other information as may be requested by the Contractor necessary so that this can be incorporated into the Safety Plan.

When risks arise because of potential interactions between the Contractor and other personnel or contractors (e.g. site transport matters) or a number of contractors are exposed to a common risk (e.g. from the site electrical distribution system), the Employer shall instruct these other contractors to adopt the same principles of risk prevention and control that are applied by the Contractor unless otherwise agreed.

1.30.2 If any other contractors are employed by the Employer and are working on or near the Site of any work, the Employer shall arrange and host Health and Safety Coordination Meetings:

(1) Frequency of the meetings: as and when considered necessary by Engineer.

(2) Unless otherwise agreed, attendees shall include representatives of the Employer, Contractor and any other contractors employed by the Employer and relevant authorities who are concerned with the execution of any work on or near the Site not included in the Contract.

(3) Agenda should relate to coordination among different contractors including for example:

(a) Effectiveness of existing Safety Plans and suggestions for revision and improvement;

(b) Issues, problems and response due to the mutual impact of the work of the Contractor, Employer's Personnel, the Employer's other contractors and the works of any relevant authorities;

(c) Accidents, injuries in the previous period and measures to be taken to prevent any reoccurrence;

(d) Status of resolution of previous problems;

(e) Items to be coordinated with police, fire department and other related organisations;

(f) Compliance and registration requirements under the Laws of the Country;

(g) Safety and health awards, media attention and the like; and

(h) Other matters.

1.30.3 Report on the Health and Safety Coordination Meetings:

(1) The Employer shall prepare a report summarising the concerns raised and conclusions of all items listed in the agenda as above.

(2) This report shall be submitted to the Engineer, Contractor and other attendees within seven (7) days after the meeting.

(3) A further copy shall be included in the Contractor's monthly progress report.

1.31 SAFETY STATISTICS

1.31.1 The Contractor shall collect and compile statistical data for safety performance on the Works in order to permit monitoring of achievement and prevention of reoccurrence of accidents, near-misses and the like, therefore contributing to the improvement of safety on the Works.

1.31.2 Actual statistics shall include the following:

(1) Accident: description, casualties, location, time, type and cause.

(2) Near-miss: description, location, time, type and cause.

(3) Lost-time: lost hours of casualties, duration of discontinuation.

(4) Total working hours for calculation of frequency rate, severity rate and annual incident rate.

(5) Number of users of the first aid station, number of people treated for disease/injury, description of disease/injury, causes.

(6) Number of health and safety staff.

(7) Number of candidates given safety induction and other training.

(8) Number of safety inspections.

(9) Number of detections of non-compliant, unsafe or lack of Contractor's Equipment.

(10) Number of instructions issued for failure to use PPE, or inadequate or ineffective PPE.

(11) Number of Engineer's Instructions issued for work suspension.

(12) Number of HSO instructions issued for work stoppage.

(13) Others.

1.31.3 All data shall be in a format and content given consent by the Engineer.

1.31.4 The data shall subsequently be compiled and included in the Contractor's Monthly Safety Report to be submitted under JSSS 1.33 [*Safety Reports*].

1.32 HEALTH AND SAFETY RECORDS

1.32.1 The Contractor shall keep health and safety records for the following:

(1) Inspection records and checklists.

(2) Meetings for safety and health management.

(3) Monitoring of safety and health management activities.

(4) Health and safety education and training for the Contractor's Personnel.

(5) Health management for the Contractor's Personnel, documents regarding workers' health conditions (such as medical history and medical examination results) shall be stored in compliance with the Laws of the Country.

(6) Work environment records and other records required by JSSS 2 [*General Safety Measures*] and other parts of JSSS.

(7) Record of reports as may be required by government authorities.

(8) Detection of non-compliant, unsafe or lack of Contractor's Equipment.

(9) Instructions issued for unsafe behaviour or unsafe site conditions.

(10) Instructions issued for failure to use PPE, or inadequate or ineffective PPE.

(11) Engineer's Instructions issued for work suspension.

(12) HSO instructions issued for work stoppage.

(13) Others.

1.32.2 All records shall be in a format and content given consent by the Engineer and all shall be made available for inspection by the Engineer.

1.32.3 A summary of the above records shall be submitted to the Engineer as a part of the Contractor's Monthly Safety Report to be submitted under JSSS 1.33 [*Safety Reports*].

1.33 SAFETY REPORTS

1.33.1 The Contractor shall provide regular safety reports to the Engineer to keep him fully informed of compliance with the Safety Plan and all matters of health and safety. Reports shall include:

(1) Daily Safety Report: number of workers, works in progress (outline), statistical results in accordance with JSSS 1.31.2, near-misses/incidents/accidents, safety findings, actions taken~~,~~ for improvement.

(2) Contractor/HSO and Joint Site Safety Inspection Reports.

(3) Weekly Safety Report: summary of safety matters of the week.

(4) Monthly Safety Report: summary of safety matters for the month, monthly and cumulative safety statistics. The Monthly Safety Report shall be submitted as a part of the Contractor's monthly progress report, required by GC 4.21 [*Progress Reports*].

1.34 HEALTH AND SAFETY INCENTIVE SCHEMES

1.34.1 The Contractor shall consistently enforce work rules (whether or not an injury or illness is reported) to demonstrate his commitment to creating a culture of safety, not just the appearance of reducing rates. Action should not be taken to penalise any worker for reporting a work-related injury or illness rather than for the purpose of promoting workplace safety.

1.34.2 It is considered that incentive schemes are an important tool to promote an improvement in workplace health and safety and the Contractor is therefore required to develop and implement such health and safety incentive schemes.

1.34.3 It is suggested that workers should be rewarded for reporting near-misses or hazards, as this promotes worker involvement in the health and safety management process.

1.34.4 Consideration should also be given to rate-based incentive schemes which concentrate on reducing the number of reported injuries and illnesses by rewarding workers with certification and/or prizes or bonuses at the end of an injury-free period and which also could reward Operation Leaders or managers based on the elimination of injuries within their respective teams.

1.34.5 Any scheme must however be implemented in such a manner that it does not discourage reporting by workers, such as taking negative action against a worker by withholding a prize or bonus because of a reported injury.

1.34.6 The Contractor shall introduce adequate precautions to ensure that workers feel free to report an injury or illness.

1.34.7 As an alternative to rate-based incentive schemes, incentive schemes that take positive steps to emphasise safety, not just incident rates are often useful such as schemes that reward workers for identifying potentially unsafe, dangerous or hazardous conditions on the Site.

1.34.8 The Contractor shall describe the proposed health and safety incentive scheme in the Safety Plan and shall also inform the Employer and Engineer about the progress and achievement of such schemes through their Monthly Safety Report submitted under JSSS 1.33 [*Safety Reports*].

1.35 CONTRACTOR'S EQUIPMENT, TEMPORARY WORKS, SAFETY EQUIPMENT AND PPE

1.35.1 Contractor's Equipment, Temporary Works, Safety Equipment and PPE to be used upon the Works, (for example electrical systems, welding and cutting equipment, Scaffolding, Formwork and Falsework, etc.) together with all components, systems, materials and equipment, safety equipment and PPE (referred to collectively in this Clause as Contractor's Equipment and Temporary Works), shall be suitable and fit for the purpose for which they are intended.

All shall be used in full accordance with the manufacturer's printed instructions or accepted industry practice and shall be used, stored, handled, assembled, erected, installed, maintained and dismantled by qualified, skilled, specially trained and experienced personnel.

1.35.2 The Contractor shall ensure that all items of Contractor's Equipment and Temporary Works for use upon the Works are inspected by the HSO at the required location before the commencement of any operation or use and regularly inspected thereafter to ensure continued compliance with the foregoing. Following any such inspection, all tested items shall be labelled by the Contractor with clear, durable and weatherproof labels confirming the last/current date of inspection, date of next inspection and signed by the HSO, thereby certifying the items as being safe for use.

If the HSO ascertains at any time that any items are not suitable for use, he shall immediately stop all use of that item, label the item as not being safe for use, stop all work for which that item and any associated items is being used and cease any such work until the situation is corrected by repair, re-testing and certifying. Similarly, the Engineer may issue instructions to stop all use of any item and stop all work for which that item and any associated items is used when it is discovered that the certification is not available or is not currently valid.

1.35.3 The Engineer may also instruct that any Contractor's Equipment and Temporary Works shall be subjected to examination, inspection, measurement or testing, by the Contractor at the expense of the Contractor. The Contractor shall submit the report of such examination, inspection, measurement or testing to the Engineer.

If, as a result, any such Contractor's Equipment and Temporary Works is found to be defective, or otherwise not in accordance with JSSS or the Contract, the Engineer may reject such Contractor's Equipment and Temporary Works by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the defect and ensure by repair/replacement as necessary and re-testing that the rejected item(s) complies with the Contract.

1.35.4 As confirmed in Form JSSS/BSD Bidder's Safety Declaration (refer to JSSS Annex 1.3 [*Additional Contractor Forms*]), the Contractor shall mobilise for use upon the Works:

(1) New or recent Personal Protective Equipment (PPE) and other safety equipment of an international standard, suitable and fit for the purpose for which it is intended, in full working order, complete with all necessary spare parts and consumables, suitable and safe for use on the Works, all to meet with the consent of the Engineer and in sufficient quantities to allow for replacement in the case of being worn-out, lost or damaged.

(2) New or recent Contractor's Equipment and Temporary Works, all suitable and fit for the purpose for which it is intended, in full working order, clean, non-polluting, complete with all necessary spare parts and consumables, suitable and safe for use on the Works.

1.36 HEALTH MATTERS

1.36.1 The Contractor is reminded of his obligations under GC 6.7 [*Health and Safety*] to take all reasonable precautions, at all times to maintain the health of the Contractor's Personnel and ensure that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics. Under other Clauses of the Contract, the Contractor is required to protect the Contractor's Personnel from insect and pest nuisance, and to take other measures to reduce danger to their health.

1.36.2 Healthcare services and facilities at the Site shall be made available free of charge for Contractor's and Employer's Personnel. If so specified in the Particular Safety Specification,

such healthcare services and facilities shall also be made available free of charge for the family members of such Contractor's and Employer's Personnel.

1.36.3 Occupational health care shall be provided by the Contractor and shall include:

(1) Environmental health care with consideration and precautions against asbestos, dust, lead and other metals, gases, hazardous and toxic chemicals, sunlight, engine exhaust emissions, (refer also to JSSS 2.1 [*Working Environment*]).

(2) Measures against noise, frequent or excessive use of vibrating tools.

(3) Avoiding frequent or excessive manual handling of loads, stress and fatigue.

(4) Fitness to work based on the physical mobility and capability of the Contractor's Personnel.

1.36.4 The Contractor shall prepare a Health Care Plan as a part of the Safety Plan including, descriptions and where necessary details or quantities of:

(1) Health care staff to be assigned at the Site.

(2) Provision of anti-mosquito measures including nets, medications and the like in malarial prone areas.

(3) Healthcare services to be provided including lectures and education on health matters.

(4) Healthcare treatment facilities and medicines on the Site together with description of equipment and consumables.

(5) Occupational healthcare proposal.

(6) Temporary water and power supply to maintain use during mains supply failure.

1.36.5 Where the Site is located at an excessive distance from urban areas and/or where there is a lack of immediate availability of healthcare services and facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional healthcare services and facilities at the Site to comply with his obligations as specified in the Particular Safety Specification and as are necessary to fully protect all relevant personnel.

1.36.6 Report of Serious Illness

(1) The Contractor shall inform the Engineer and submit details of any serious illness.

(2) Having investigated and established the cause of any serious illness, the Contractor shall report the detail and conclusion of the investigation as soon as practicable to the Engineer.

(3) The report shall include details of the HSO's recommended counter-measures.

(4) The Engineer is to be consulted on the types of illness for which reports are to be informed.

1.37 DESIGN AND MANAGEMENT OF TEMPORARY WORKS

1.37.1 Unless otherwise specified in the Particular Safety Specification, the Contractor is required to comply with Sections 1 and 2 of BS5975: Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework as management standard with respect to design, erection, use and dismantling of Temporary Works.

1.37.2 An alternative standard is acceptable by reference to JSSS 1.4.5 [*Specified Standards*] providing that the proposed alternative also contains equivalent or higher standards for the management of Temporary Works.

1.37.3 It is to be noted that Sections 1 and 2 of BS5975 constitutes guidance and recommendations and it is not quoted herein as if it constitutes a specification or an integral part of JSSS. The Contractor shall however justify in writing any course of action that deviates from the

recommendations of Sections 1 and 2 of BS5975 and shall submit such justification to the Engineer for his information and consent.

1.37.4 It is to be noted that certain design standards included or referred to in the BS (for example wind loadings), are restricted to use in the United Kingdom, in which case the Contractor shall be assumed to have adopted the design standards applicable in the Country.

1.37.5 The Contractor shall prepare and implement suitable procedures whereby all Temporary Works staff during the course of their work and on completion shall prepare and sign formal records of all Temporary Works under their management and control, thereby certifying that all has been performed, completed and validated in accordance with Sections 1 and 2 of BS5975. All such records shall be in a format and content subject to the consent of the Engineer and all shall be made available for inspection by the Engineer.

1.37.6 Without affecting the Contractor's responsibilities for design of the Temporary Works, the Engineer shall cooperate with the Contractor's Temporary Works staff and shall provide pertinent information about the design of the Permanent Works which may be of relevance and assistance to the Contractor with the Temporary Works design.

The Contractor shall submit Method Statements for any parts of the Temporary Works (including designs and calculations of Falsework) as may be requested by the Engineer for his review in accordance with JSSS 1.9 [*Contractor's Method Statements*]. If the Engineer chooses to review same, this shall not be construed as a check or validation of the Contractor's design or methods.

The Engineer may review Temporary Works design for those parts which he considers to be of vital importance for safety. The Contractor shall cooperate and work with the Engineer on this task to demonstrate that the Contractor has systems in place to ensure compliance with Sections 1 and 2 of BS 5975 or any other acceptable standard in accordance with JSSS 1.37.2.

1.37.7 For further information on monitoring the performance of Temporary Works, refer to JSSS 6.1.3. [*Monitoring the Performance of Temporary Works*].

1.37.8 Irrespective of any legal requirement under the Laws of the Country, all of the Contractor's Temporary Works staff shall have appropriate academic, educational or vocational qualification for Temporary Works coordination, design or supervision as appropriate. Such staff shall also have work experience in construction and in Temporary Works design or supervision as appropriate. The Contractor shall ascertain for himself that all such staff are qualified to perform their duties.

1.38 UNEXPLODED ORDNANCE (UXO)

1.38.1 If there is a possibility that any UXO may exist at the Site, then unless otherwise specified in the Particular Safety Specification, this shall be surveyed and investigated by the Employer and the result of this investigation shall be clearly stated and full information including survey and investigation results shall be provided by the Employer in the Particular Safety Specification.

1.38.2 Unless otherwise specified in the Particular Specification, clearance of UXO shall be undertaken by the Employer and at the cost of the Employer.

1.38.3 Completion of clearance shall be evidenced through the issue by the Employer's specialist remover of a certificate of UXO clearance from the Site. Unless otherwise approved by the Engineer, no work shall commence in affected areas of the Site until the receipt of a copy of this certificate.

1.38.4 Should the Contractor encounter any UXO, after a clearance certificate has been issued in accordance with the above, he shall immediately stop all affected work at the affected area of the Site, clear the area of all Contractor's Personnel, Employer's Personnel and all other persons and notify the Engineer and relevant authorities.

1.38.5 Unless otherwise agreed between Employer and Contractor, the Employer shall then make

further arrangements for removal and disposal, then obtain and issue a further clearance certificate. Work shall resume in the affected areas after the Contractor has received a copy if the further clearance certificate together with any further instructions from the Engineer.

ANNEXES TO CHAPTER 1: GENERAL REQUIREMENTS

Annex 1.1: Definitions and Abbreviations

A1.1.1 The following words and expressions in JSSS relating to the Conditions of Contract and the content of JSSS shall have the definitions stated:

(1) "**GC**" followed immediately by a reference number means respectively General Conditions of Contract Clause or Sub-Clause.

(2) "**Health and Safety Officer**" or "**HSO**" means the Contractor's health and safety officer at the Site to be appointed by the Contractor in accordance with GC 6. 7 [*Health and Safety*]. For the purposes of interpretation under JSSS, the reference to "accident prevention officer at the Site" in GC 6.7 [*Health and Safety*], shall be construed as "Health and Safety Officer at the Site".

(3) "**JICA Standard Safety Specification**" or "**JSSS**" means the document of this title published officially by JICA on their website as may be further modified by the Particular Safety Specification for the Works.

(4) "**Method Statement**" means a document that shows the details of the arrangements, methods and resources that the Contractor proposes to adopt for the execution of the Works or any part of the Works, as referred to in GC 4.1 [*Contractor's General Obligations*] and supplemented by JSSS 1.9 [*Contractor's Method Statements*].

(5) **"Operation Leader" (**also known variously as a "Ganger", "Leading Hand", "Foreman" (working and non-working), "Team Leader", "Superintendent", "Supervisor" and the like) means a member of the Contractor's workforce who through experience, training and testing is deemed by the Contractor to be appropriately qualified, skilled and experienced in their respective trade or occupation to work with, lead and/or supervise the teams of workers, directing them and/or superintending them in the performance of their assigned duties and to ensure their compliance with the Contractor's safety regulations and who can also be referred to within the OSHA definition as a "Competent Person".

(6) "**OSHA**" means the technical requirements of the OSHA standard(s) from the Code of Federal Regulations (29 CFR) published by the Occupational Safety and Health Administration, U.S. Department of Labor.

(7) "**Particular Safety Specification**" means the document that contains the particular additions and modifications to JSSS, necessary to create a precise and relevant specification of the health and safety requirements for the Works.

(8) "**Project**" means the particular Works and services to be implemented by the Borrower and described in the loan agreement, utilising the funds provided by JICA under the terms mutually agreed for that purpose.

(9) "**Safety**" shall also mean "occupational health and safety" and "health and safety".

(10) "**Safety Plan**" means a document (or documents) that contains the overall risk assessments together with the details of all health and safety arrangements, methods and resources that the Contractor proposes to adopt for health and safety management of the entire Works or any Section or part of the Works, as referred to in GC 4.1 [*Contractor's General Obligations*] as supplemented by JSSS 1.7 [*Contractor's Safety Plans*].

(11) "**Safety Specification**" means the document that contains Part 1 [*JSSS*] and Part 2 [*Particular Safety Specification*].

A1.1.2 The following words and expressions in JSSS relating to the technical content of JSSS shall have the definitions stated:

(1) "**Accident Response**" means the requirements for the Contractor's response to an accident at the Site, as further referred to in JSSS 1.24 [*Accident Response Plan*].

(2) "**Blasting**" means blowing-up or breaking apart solid rock with the use of Explosives.

(3) "**Blasting Exclusion Zone**" means an area from which all unauthorised Contractor's Personnel, unauthorised Employer's Personnel and any other unauthorised personnel or the general public are prohibited to enter due to the risk of their being affected by the Blasting Works. Unauthorised personnel in this context shall have the same meaning as that stated in JSSS Clause 2.3.1.

(4) **"Confined Spaces"** means spaces that are not designed for continuous occupation but are provided for persons to enter and perform certain works (including inspection, maintenance and repairs) and that consequently may have limited or restricted means for entry or exit. Due to the likelihood of insufficient ventilation, the Contractor shall be aware of a potentially unhealthy or dangerous environment and he shall be deemed to have investigated and taken measures against such risks in every case.

(5) **"Cofferdam"** means a temporary enclosing wall constructed in water, to permit the enclosed area to be pumped out and used as safe and accessible working space.

(6) **"Dangerous Goods"** means corrosive, flammable, explosive, spontaneously combustible, toxic, oxidising, or water-reactive materials. They must be identified in the workplace (and when being transported) by different coloured 'diamond' symbols. classified on the basis of immediate physical or chemical effects, such as fire, explosion, corrosion and poisoning. An accident involving Dangerous Goods could seriously injure persons and seriously damage property and/or the environment.

(7) **"Dangerous Work"** means Permanent or Temporary Works to be executed by the Contractor in Confined Spaces, Hazardous Areas, or Operational Areas or in the presence of or requiring the use of Hazardous Substances or Dangerous Goods or other work which is especially and potentially dangerous and which requires the use of specialist skills, safety equipment, safety measures and PPE.

(8) "**Designated Person-in-Charge**" or "**DPIC**" means a senior member of the Diving Team who, through qualification, experience and capability is deemed by the HSO to be qualified to be in charge of all aspects of the Diving Operation including those affecting the safety and health of members of the Dive Team.

(9) "**Dive Team**" means Divers, support assistants and workboat crew who are involved in any Diving Operation, including the Designated Person-in-Charge.

(10) "**Diver**" means a worker working in water using underwater breathing apparatus which supplies compressed breathing gas at the ambient pressure.

(11) "**Diving Operation**" means one (1) single diving activity for one (1) Diver or a team of Divers commencing from the time when the first Diver enters the water and extending until the last Diver has left the water, chamber or other environment in which the dive, or any part of the dive, took place and has completed any requisite decompression procedures, including, where it may be reasonably anticipated that this will be needed, any therapeutic recompression. The nature and size of any Diving Operation shall be such that it can be safely supervised by one (1) person.

(12) "**Diving Works**" means a part of the Works consisting of one (1) or more Diving Operations.

(13) "**Earthwork Support**" means the permanent or temporary structural support arrangements to prevent the collapse or weakening of the surfaces of any excavation including for example basement, pit, trench or slope excavation.

(14) "**Elevated Access Structures**" means substantial, elevated, temporary working platforms, usually comprised of structural steel columns, beams, framing and floor decking and used for performing works on Sites with difficult access or restricted space, on steeply sloping or Sites in water.

(15) "**Emergency Response**" means the requirements for the Contractor's response to any Emergency at the Site or Sites, as further referred to in JSSS 1.26 [*Emergency Response Plan*].

(16) "**Explosives**" means any substance or mixture of substances that is manufactured to produce an explosive effect and which term includes any Blasting explosive, Blasting agent and Blasting supplies such as detonators, cords and detonating equipment.

(17) "**Falling Objects**" means objects falling from heights including displaced, dropped, or blown Goods, tools, debris or waste material.

(18) "**Falsework**" means temporary supporting structures used to support parts of the Temporary Works or Permanent Works during construction, until the latter are stable, self-supporting and safe.

(19) "**Formwork**" means temporary containment structures for cast-in-place (poured or pumped) concrete and the immediately supporting members in advance of the concrete achieving sufficient strength to support its own weight and act safely as a structural component.

(20) **"Hazardous Areas"** means areas where there is a risk of explosion due to the presence of flammable or explosive gases, vapours, mists or dusts.

(21) **"Hazardous Substances"** means any substance, whether solid, liquid or gas, that may cause harm to health.

(22) "**Hoisting Equipment**" means Contractor's Equipment such as cranes, hoists, chain-blocks, pulleys and the like which constitute the prime mover that, when used with Rigging Equipment, permits loads to be hoisted or lowered and positioned.

(23) "**Hoisting Operation**" means the selection of Hoisting Equipment appropriate to the purpose, preparation of Method Statements and Safety Plans and safely implementing the hoisting and placing of loads in position.

(24) "**Operational Area**" means an area in a functioning process, treatment, manufacturing or like facility where the Contractor is required to perform work while the Employer is continuing operations.

(25) "**Other Properties**" means buildings, structures, ground surfaces and substrata, paved areas, roads, footpaths, fences, railways, waterways, drainage, utilities and other services or the like or any other property on the Site or outside the Site which may be in some way affected by the execution of the Works.

(26) "**Personal Fall Arrest System**" or "**PFAS**" means a fall protection system that is designed to arrest a worker in a fall from a working level.

(27) "**Personal Fall Restraint System**" or "**PFRS**" (also referred to as a "Positioning Device System") means a fall protection system that is designed to restrict the movement of workers, preventing them from reaching the edge of any working area and therefore eliminating the risk of a fall.

(28) "**Personal Protective Equipment**" or "**PPE**" means equipment that is worn by the person to minimise exposure to hazards that cause serious workplace injuries and

illnesses, which may result from Falling Objects, excessive noise, dust, contact with chemical, radiological, physical, electrical, mechanical, or other workplace hazards.

(29) "**Rated Capacity**" (referred to occasionally in OSHA and elsewhere as "Safe Working Load") means the maximum load capacity for items of Contractor's Equipment and Temporary Works, as officially recommended by the manufacturer. The Rated Capacity may be dependent upon the configuration and conditions of use (e.g. length, angle of boom and the like).

(30) "**Rigger**" means a competent person who is certified by the HSO as suitable for assignment to Hoisting and Rigging in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*].

(31) "**Rigging Equipment**" means the ropes, webbing, chains and slings together with all associated accessories such as hooks, hoisting points, shackles, etc. that, when used with Hoisting Equipment, permits loads to be hoisted or lowered, and positioned.

(32) "**Safety Belt**" means a sufficiently substantial strap to be secured about the waist for attaching to a lanyard or line to restrain the movement of workers and prevent them from reaching locations from where they may be at risk of falling.

(33) "**Safety Harness**" means a sufficiently substantial harness to be secured about the body for attaching to a lanyard, lifeline and deceleration device to safely arrest and support any worker during a fall.

(34) "**Scaffold**" or "**Scaffolding**" means a temporary structure or structures that provide access on or from which persons work or to support Goods.

(35) "**SCUBA Diving**" means a diving mode independent of surface supply in which the Diver uses open circuit self-contained underwater breathing apparatus.

(36) "**Skill Training"** means additional training to be provided by the Contractor for the Contractor's Personnel to develop and improve their trade skills in performing their work at the Site and shall include OJT and theoretical training in accordance with JSSS 1.21 [*Skill Training*]. Such training shall also include examining and testing by the Contractor and certification of attainment in such skills.

(37) "**Spotter**" means a member of the Contractor's Personnel who is generally responsible for warning other Contractor's and Employer's Personnel and other persons and keeping them away from working operations and areas, for assisting drivers of trucks and operators of Contractor's Equipment in positioning their vehicles and equipment particularly when reversing, positioning or hoisting, and such further duties as are assigned to them in JSSS 2.4 [*Spotters*].

Any reference to a "Spotter" in JSSS shall also be deemed to include a reference to a banksman or flagman.

(38) "**Surface-Supplied Air Diving**" means a diving mode in which the Diver is supplied at the dive location with a piped supply of compressed air for breathing.

(39) "**Trade Effluent**" means any liquid waste (effluent) that is discharged from premises being used for a business, trade or industrial process, other than surface water and domestic sewage.

(40) "**Unexploded Ordnance**" or "**UXO**" means unexploded bombs, or explosive remnants of war or explosive weapons(such as bombs, shells, grenades, land mines, naval mines, cluster munition, and the like) that did not explode when they were employed and still pose a risk of detonation, sometimes long after they were used or discarded.

(41) "**Working Platform**" means a platform on or within a Scaffold that is intended and designed to support persons or Goods.

A1.1.3 The following abbreviations of technical terms shall have the meanings stated:

AED	Automatic External Defibrillator
BMGV	Biological Monitoring Guidance Values
CPR	Cardiopulmonary Resuscitation
GFCI	Ground Fault Circuit Interrupter
ODA	Official Development Assistance
OJT	On the Job Training
PFAS	Personal Fall Arrest System
PFRS	Personal Fall Restraint System
PPE	Personal Protective Equipment
RCD	Residual Current Device
TBM	Tool Box Meetings
TWA	Time Weighted Average
WEL	Workplace Exposure Limits

A1.1.4 The following abbreviations of standards, codes and the like shall have the meanings stated:

ACI	American Concrete Institute
ANSI	American National Standards Institute
ASHTO	American Association of State of Highway Transportation Officials
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials.
BS	British Standard
BS EN	British Standard European Norm
HSE	UK Health and Safety Executive
ISO	International Organization for Standardization
ILO	International Labour Organization
JIS	Japanese Industrial Standards

Annex 1.2: Content of Bid Stage Safety Plan

A1.2.1 This Annex lists the required content for the Bid Stage Safety Plan as referred to in JSSS 1.7 [*Contractor's Safety Plans*]. Unless otherwise specified in the Particular Safety Specification, the Contractor shall follow this format and structure in the Bid Stage Safety Plan. The same format and structure shall be used later for the Baseline Safety Plan but with the content developed as necessary to show the required detail.

A1.2.2 The Bid Stage Safety Plan shall be an outline plan but it must cover each of the items listed below with sufficient detail provided to demonstrate that the Bidder understands the requirements and indicates the Bidder's intentions, so that this can be understood and properly evaluated.

(1) Description of the Works

A description of the Works supported by overall layout plan(s) to provide a clear understanding of the overall layout and content of the Works and showing main construction items and areas, roads, Site access and egress locations, working areas, storage areas, temporary offices, laydown areas, warehouses and like facilities and including a summary of principal work items and significant quantities, etc.

(2) Bidder's Corporate Policy on Health and Safety Management

A description of the Bidder's corporate health and safety management policy covering the aims and intentions for improving the level of health and safety. The policy shall include a description of the purpose of health and safety (prevention of occupational accidents, maintenance of physical and mental health of workers, etc.), a description of the basic company policies on risk assessment and health and safety management.

(3) Health and Safety Management System, Responsibility and Authority of Bidder's Personnel

A description of the health and safety management organisation at the Site headed by the Bidder's Health and Safety Officer (HSO) and showing the approximate numbers, responsibilities and authority of any other Contractor's Personnel involved in health and safety management at the Site.

A description of the responsibilities and authority of the Bidder's head office health and safety personnel together with the communication procedures for contact and support for the Site safety teams.

(4) Health and Safety Laws

A list of Laws (including all standards) of the Country which require the Bidders compliance for the health and safety of his workers and for the health and safety management of the Works. If the Contractor considers any parts to be superseded by JSSS then the relevant Clause number of JSSS shall be inserted.

(5) Bidder's Safety Management System

Refer to JSSS 1.5 [*Contractor's Safety Management System*].

Describe the scheme that the Bidder is proposing and how he intends to implement same.

(6) Temporary Works

Refer to JSSS 1.37 [*Design and Management of Temporary Works*].

A Safety Plan for Temporary Works listing the principal items, describing the content, and specifying the outline of safety measures to be applied to ensure compliance with the requirements.

(7) Temporary Facilities on Site

The plan shall include a description of the general health and safety rules (e.g. smoking areas, traveling speed on Site, cleanliness, tidiness, latrines, wash rooms, shelters, etc.).

(8) Safety Measures for Contractor's Design of the Permanent Works

If, under GC 4.1 [*Contractor's General Obligations*], the Contract specifies that the Contractor shall design any part of the Permanent Works, the Bidder shall provide a description of the arrangements for controlling risks arising from such design of the Permanent Works.

(9) Safety Plan for the Works

A Safety Plan for the whole of the Works with separate parts provided for each part of the Works, including descriptions of the likely risks and measures for preventing accidents on the Site.

(10) Safety Plan for Diving Works

(Where Diving Works are included in the scope)

Refer to JSSS 10 [*Diving Works*].

A Safety Plan in accordance with the requirements of JSSS 10, including a description of the arrangements at the Site of the Diving Works for emergency recompression/decompression.

(11) Safety Plan for Dangerous Work.

Refer to JSSS 1.22 [*Dangerous Work*].

A listing of any Dangerous Work which will be encountered on the Site and general details of the Safety Plan for such Dangerous Work by reference to JSSS Annex 1.1 [*Definitions and Abbreviations*] and GC 4.1 [*Contractor's General Obligations*].

(12) Permit to Work System

Refer to JSSS 1.23 [*Permit to Work System – Dangerous Work*].

A listing of all high-risk areas of the Works that shall be subject to the Permit to Work System together with a description of proposed procedure.

(13) Safety Measures for Contractor's Equipment

Refer to JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

A description of the procedures for inspecting and maintaining the Contractor's Equipment together with all spare parts, including inspections prior to shipment, after arrival at the Site and during use to ensure that all Contractor's Equipment at the Site is maintained in a safe, efficient, non-polluting and acceptable condition. It shall include a general description of all regular maintenance and repair activities.

(14) Proposed Health and Safety Incentive Scheme

Refer to JSSS 1.34 [*Health and Safety Incentive Schemes*].

A description of the Proposed Health and Safety Incentive Scheme, designed to encourage conscious consideration of health and safety by Contractor's Personnel and to reward improvement.

(15) Safety Information Sharing and Communications Policy

A description of the information sharing and communication systems for health and safety within the organisation of the Contractor and between the Contractor and Employer, Engineer and relevant government agencies, etc. Reference shall be made to the various health and safety meetings described in JSSS.

A description of safety management activities for Contractor's Personnel shall be included together with the method for giving and receiving feedback and opinions regarding health and safety.

(16) Health and Safety Equipment, Facilities and Personal Protective Equipment (PPE)

Refer to JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

A description of the intended policies for the deployment of safety equipment, facilities and PPE to reduce health and safety risks, detailing the items and methods for providing and replacing (when worn, lost or damaged) general PPE and the use of additional PPE for particular working locations, environments and conditions.

(17) Site Inspection Plan

A description of the methods for Site inspections by the HSO, types of inspection and frequency.

The description shall also include the methods for reporting, recording and utilising results and also for posting warnings, no entry notices, giving instructions and stopping work.

(18) Site Security

A description of the proposed Site security methods explaining how access to the Site by third parties, neighbours, nearby residents and any trespassers upon the Site will be prevented or (if and when applicable) permitted.

The description shall include the provision and control of entry and exit gates, barriers etc., security posts, security patrols and any other measures to reasonably ensure the security of the Site.

(19) Policy for Preventing Traffic Accidents

A description of the measures to be implemented for the prevention of traffic accidents on the public roads outside the Site and on roads and all other trafficked areas within the Site.

A description of the measures to be implemented to prevent workers riding in the back of pick-ups or trucks, or boarding or alighting from them near the Site, compulsory wearing of seat belts.

(20) Reporting Procedure for Unsafe Conditions and Behaviour

A procedure for the reporting of unsafe conditions and unsafe behaviour on the Site (including near-misses) together with improvement actions including instructions, implementation and the recording of improvement measures.

(21) Accident Response Plan

Refer to JSSS 1.24 [*Accident Response Plan*].

The Plan shall describe the facilities to be provided and also cover the preparation and submission of the accident report, describing when an accident report will be prepared and submitted, the method of investigation of causes, planning and implementation of preventive measures against recurrence.

(22) Health Care Plan

Refer to JSSS 1.36 [*Health Matters*].

A description of the proposed facilities, furniture and equipment for rest stations, restroom, dining facilities, canteens, sanitary facilities, sports and leisure facilities, shower facilities, changing room etc.

A health care plan with services and facilities for maintaining the health and occupational health of all Contractor's Personnel.

(23) Environmental, Temporary Works and Structural Monitoring Plans

Refer to JSSS 2.1.7 [*Monitoring and Records*].

A description of the proposed monitoring equipment, instruments, Contractor's Personnel and methods for monitoring and control of the working environment, the performance of the Works and the avoidance of damage to Other Properties.

(24) Fire Response Plan

Refer to JSSS 2.8 [*Fire Prevention*].

Details of the fire prevention services to be provided at the Site.

(25) Emergency Response Plan

Refer to JSSS 1.26 [*Emergency Response Plan*]

Details of the Emergency Response Plan.

(26) Monitoring and Review of Health and Safety Management Activities

The procedures for monitoring and reviewing the purpose, method, timing, utilisation of results, development, etc. of health and safety management activities such as safety inspections, TBM, 5S activities (refer to JSSS 1.15 [*Contractor's Safety Management Activities*]).

(27) Safety Induction Training

Refer to JSSS 1.20 [*Safety Induction Training*].

An outline description of the required safety induction training for all proposed health and safety training plans, describing methods, facilities, time, teaching materials, policies for selecting trainers, etc. and covering safety induction.

Details of special training required for Dangerous Work shall also be included.

(28) Skill Training

Refer to JSSS 1.21 [*Skill Training*].

An outline description of the proposed Skill Training plans for local counterpart Operation Leaders, describing OJT and classroom components, facilities, participants, time, teaching materials, policies for selecting trainers and the counterparts.

(29) Legal Requirements

A description in brief with references to the legal requirements and remedies in the Country for injuries and death at work and for persons affected by illness, together with a summary of any workmen's accident compensation insurance or stating that there are no such legal requirements if that is the case, and any other legal obligations and remedies.

Annex 1.3: Additional Contractor Forms

Attached Forms:

Form JSSS/BSD – Bidder's Safety Declaration

Form JSSS/SAR – Sample Accident Report

Form JSSS/BSD – Bidder's Safety Declaration

[This form is to be inserted in the Bidding Documents after the existing Form-ACK, with new page number, renumbering existing pages appropriately and inserting suitable reference in the Table of Forms]

I, *[insert name and position of authorised signatory]*, being duly authorised by *[insert name of Bidder/members of joint venture ("JV")]* (hereinafter referred to as the "Bidder") to execute this Form JSSS/BSD, hereby declare our commitment to comply with the health and safety requirements of the Contract.

The Bidder declares, that if selected to undertake the Works, he will ensure that the Site is established and maintained as a healthy and safe workplace for the Contractor's Personnel, the Employer's Personnel and all other persons entitled to be thereon or that may be affected by operations thereby.

The Bidder hereby declares that after investigation and research of resources within the Country, he has given full and careful consideration and fully accepts the need and has made full allowance for the importation, the use upon the Works and subsequent re-export in accordance with the Contract of all required Contractor's Equipment, Temporary Works, PPE and all other safety resources necessary to maintain the international level of health and safety upon the Works.

The Bidder declares that he will mobilise for use upon the Works:

1. New or recent PPE and other safety equipment of an international standard, suitable and fit for the purpose for which it is intended, in full working order, complete with all necessary spare parts and consumables, suitable and safe for use on the Works, all to meet with the consent of the Engineer and in sufficient quantities to allow for replacement in the case of being worn-out, lost or damaged, and
2. New or recent Contractor's Equipment and Temporary Works, all suitable and fit for the purpose for which it is intended, in full working order, clean, non-polluting, complete with all necessary spare parts and consumables, suitable and safe for use on the Works.

The Bidder further declares that he shall:

1. Carry out regular and thorough safety inspections, find and correct any health and safety problems on the Works, primarily by trying to eliminate or reduce hazards through making feasible changes in working conditions rather than relying on PPE to reduce risks.
2. Employ workers with appropriate skill, educational or vocational qualification, experience and capability.
3. Fully inform workers about hazards.
4. Provide health and safety training to all Contractor's Personnel, any Subcontractors, suppliers and others for whom the Contractor is responsible, the Employer's Personnel and all other persons who are entitled to be on the Site, in a language and vocabulary they can understand.
5. Keep accurate records of work-related injuries and illnesses.
6. Perform tests in the workplace, such as air sampling as required by the Safety Specification.
7. Provide required new PPE at no cost to workers and ensure that this is used properly, kept in good condition and replaced in the case of being worn-out, lost or damaged.
8. Assign only workers who, in consideration of health, physical condition and age are suited to the operations to which they are assigned.
9. Provide eyesight, hearing and mobility examinations and other medical tests required by the Contract.

10. Post injury and illness information and data where workers can see them.

11. At occurrence of any accident, promptly inform the Engineer and thereafter submit details of the accident within twenty-four (24) hours after its occurrence.

12. Not retaliate against workers for using their rights under the Laws of the Country.

The requirements of this declaration shall apply fully to all of the Bidder's proposed Subcontractors, suppliers and specialists engaged by the Bidder on the Works, for whom the Bidder shall remain fully responsible.

The Bidder also affirms that if the Bid is successful, the Health and Safety Officer, named below and also included in Bidding Form, Form PER -1: Proposed Personnel, unless otherwise required by the Bidding Documents, shall be assigned from the Commencement Date, full-time upon the Site and shall not be replaced or substituted at any time except with the consent of the Engineer.

If the Bid is accepted the Bidder agrees that this Declaration shall form a part of the Contract, at and from which time all references to "Bidder" shall be construed as references to "Contractor".

Signed:	Signed:
_____	(Bidder's Proposed Health and Safety Officer)
(Bidder's Official Representative)	Or
	Bidder's Head Office Health and Safety Manager*)
Name:	Name:
_____	_____
Date: _____	Date: _____

*(*Delete as applicable)*

Form JSSS/SAR – Sample Accident Report

[The form is to be completed by the Contractor, submitted to the Engineer when applicable and in accordance with JSSS 1.25 [Measures at the Time Accidents Occur]

CONTRACT INFORMATION:	
1) Name of Project:	
2) Project Reference Number： （e.g. L/A No.）	
3) Contract Number:	
4) Package Description:	
5) Employer: (name and nationality)	
6) Contractor: (name and nationality) (If casualty(ies) is(are) belonging to Subcontractor) Subcontractor: (name and nationality)	
7) Engineer: (name and nationality)	
8) Press Report about the Accident (Name of Media, Date, and Copy of Report to be attached)	

(above to be inserted before all reports)

FIRST REPORT INFORMATION:	
1) Date and time of accident occurrence (local time):	
2) Date and time of first verbal report to Engineer:	
3) Exact location of accident occurrence:	
4) Brief background and apparent cause:	
5) (i) Number of casualty(ies)/ (ii) Information of casualty(ies) (Nationality, Age, Sex, Position, Experience Year)/ (iii) Description of injuries incurred	
6) Physical damages to the Works, Site and any properties of the third parties	
7) Present medical status of casualty(ies):	
8) Present work status:	
9) List attached information (e.g. Layout and sketch drawings, photographs, notes and report):	
10) ccident Report Submission Date	

SUBSEQUENT REPORT INFORMATION (POST-INVESTIGATION):	
1) Cause(s) of the accident:	
2) Counter-measures proposed by the Contractor to avoid recurrence of similar accidents and risks:	
3) Number of reported accident(s) occurred in the past one (1) year in the same Contract Package as the accident occurred:	
4) Number of reported near misses occurred in the past one (1) year in the same Contract Package as the accident occurred:	
5) Other Information:	

Report Prepared by: (name): _____ (sign) : _____ Report Submission Date(s) _____ Time: _____	Contractor's Health and Safety Officer (HSO)
Receipt acknowledged by: (name): _____ (sign): _____ Report Receipt Date(s) _____ Time: _____	Engineer

(above to be inserted with detail and signatures at end of each report)

CHAPTER 2: GENERAL SAFETY MEASURES

2.1 WORK ENVIRONMENT

Contractor's Personnel shall be provided with a safe and healthy occupational environment. The Contractor shall implement all necessary measures to avoid the creation of and/or any contact with Hazardous Substances, intense noise, heat, cold or similar and potentially harmful conditions or to provide protection against such conditions.

2.1.1 Hazardous Substances

(1) Definitions

Refer to the definition of Hazardous Substances in JSSS Annex 1.1 [*Definitions and Abbreviations*].

(2) Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any Hazardous Substances either existing on the Site, used in or encountered on the Works, the Contractor shall take necessary measures for work environment complying with EH40/2005 Workplace Exposure Limits, (third edition published 2018), issued by HSE, including monitoring such substances to ensure that the Short Term and Long-Term exposure limits in HSE Table 1 are not exceeded.

2.1.2 Dust

(1) Dust

Dust of any kind when present at a concentration in air shall not be equal to or greater than:

(a) 10 mg/m3 (8-hour Time Weighted Average: TWA) of inhalable dust; or

(b) 4 mg/m3 (8-hour TWA) of respirable dust.

(2) Prevention

(a) The Contractor shall prevent dust emission, by keeping the source moist and covering dust creating areas and materials with suitable dust-proof sheeting; and

(b) The Contractor shall provide all necessary Contractor's Equipment and Temporary Works to achieve this including water-bowsers, spraying equipment, extract ventilation and filtration equipment.

(3) PPE

(a) If, in the opinion of the HSO, it is not reasonably practicable to reduce dust to acceptable levels, PPE (Breathing Apparatus) shall be provided for all relevant Contractor's Personnel; and

(b) For details of PPE refer to JSSS 2.9.1 [*PPE*].

(4) Asbestos

(a) The Contractor shall be aware that asbestos causes occupational fatalities. It is commonly found in older buildings frequently in ceiling and floor cavities, insulation, sprayed coatings, floor tiles and composites, asbestos-cement sheets and roofing felt;

(b) If the scope of the Works requires removal of any of the above materials then the Contractor shall check for asbestos content, then remove and dispose of such materials in compliance with L143 Approved Code of Practice and guidance, for Managing and Working with Asbestos (second edition published 2013), issued by HSE; and

(c) If the Particular Safety Specification specifies that asbestos may exist at the Site and that the Contractor is responsible for the removal and disposal or if it is discovered during the execution of the Work and the Contractor is instructed by the Engineer to remove it, then the Contractor shall take measures in accordance with the requirements of JSSS 1.22 [*Dangerous Work*]; and comply with L143 Approved Code of Practice and guidance, for Managing and Working with Asbestos (second edition published 2013), issued by HSE; for the controlled safe removal and disposal of asbestos.

2.1.3 Poor Ventilation

(1) The Contractor shall inspect and carry out monitoring to ensure that all working areas have adequate and healthy natural ventilation.

(2) If any areas do not have adequate and healthy natural ventilation, the Contractor shall provide suitable and efficient mechanical ventilation systems with fans, ducting and all associated devices and services to improve the working environment to acceptable safe levels.

(3) If this is not completely possible then PPE (breathing apparatus) shall be used in accordance with the requirements of JSSS 2.9.1 (8) [*Respiratory Protection Equipment (RPE)*].

(4) The Contractor shall generally prohibit the use of internal combustion engines in internal areas. When the use of such engines is unavoidable, the Contractor shall provide exhaust systems which safely and efficiently collect, contain and expel exhaust gases to external areas and provide additional adequate ventilation.

2.1.4 Noise

(1) Compliance Standards

(a) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for noise exposure and control complying with OSHA 1926.52 [Occupational noise exposure]; and

(b) The Contractor shall provide equipment such as, sound level meters, noise dosimeters, or octave band analysers to determine what sound levels exist and whether they are within the levels in Table D-2 or not.

(2) Preventive Measures

To prevent noise damage to Contractor's Personnel, which may occur when noise levels exceed 90 dBA (referred to as "intense noise" in JSSS), or if for any reason sound levels cannot be determined as above the Contractor shall:

(a) Reduce sound levels through feasible administrative or engineering controls to within the levels of Table 2.1.1 [*OSHA Table D-2: Permissible Noise Exposures*], if at all possible:

Table 2.1.1: OSHA Table D-2: Permissible Noise Exposures

Duration per day, hours	Sound level dBA slow response	Duration per day, hours	Sound level dBA slow response
8	90	1½	102
6	92	1	105
4	95	½	110

3	97	¼ or less	115
2	100		

(b) If such controls are not possible or if they fail to reduce sound levels within the levels of OSHA Table D-2, provide PPE (Ear Protection) for relevant Contractor's Personnel as specified in JSSS 2.9.1 (7) [*Ear Protection*] in consideration of the noise level and length of noise exposure at the working area in accordance with the provisions of the OSHA Standard;

(c) Post warning signs at the working area to make all Contractor's Personnel aware that ear protection must be worn; and

(d) In all cases where the sound levels exceed the values shown OSHA Table D-2, a Continuing Effective Hearing Conservation Program specified in (3) below shall be implemented.

(3) Hearing Conservation Program

(a) The Contractor shall implement a hearing protection and conservation program whereby noise exposure levels are monitored in order to accurately identify any Contractor's Personnel that are exposed to noise at or above 90 dBA averaged over 8 working hours, or an 8-hour time TWA;

(b) Further to JSSS 2.1.4 the Contractor shall comply with OSHA 1910.95 [Occupational noise exposure], in respect of exposure to impulsive or impact noise;

(c) Exposure to impulsive or impact noise shall not exceed 140 dBC peak sound pressure level; and

(d) The Contractor shall monitor all workers whose noise exposure is equivalent to or greater than a noise exposure received in eight (8) hours where the noise level is constantly 85 dBA. The exposure measurement must include all continuous, intermittent, and impulsive noise within an 80 dBA to 130 dBA range and must be taken during a typical work situation. The Contractor shall choose the monitoring method that best suits each individual situation.

コメントの追加 **[SS9]:** No. 32
Unit shall be revised as follows:
140 shall be with dBC and others shall be with dBA.

2.1.5 Further Requirements for Dangerous Work

Further to the requirements of JSSS 1.22 [*Dangerous Work*] and in relation to work in Confined Spaces, Hazardous Areas, or Operational Areas or in the presence of or requiring the use of Hazardous Substances or Dangerous Goods or other work which is especially and potentially dangerous, requiring the application of special skills, safety equipment, safety measures and PPE, the Contractor shall establish systems and procedures to ensure the safety of all Contractor's Personnel engaged upon or supervising or managing such Dangerous Work, and for this purpose the Contractor shall:

(1) Measure the concentration of oxygen, hydrogen sulphide, carbon dioxide, carbon monoxide, chlorine, chlorine dioxide, Trade Effluent and any other potentially harmful materials, gases and chemicals, or other work environment items before starting any work.

(2) Safely isolate the supply and flow of any Trade Effluent, or other potentially harmful materials, gases and chemicals during the period of any work and safely reconnect or continue same after the work is finished.

(3) Improve and maintain the work environment for example by mechanical ventilation and filtration if the result of the work environment measurement in (1) above violates the limits specified in this JSSS 2 [*General Safety Measures*].

(4) For further information on the removal and disposal of Hazardous Substances refer to

JSSS 1.22 [*Dangerous Work*].

(5) For further information on prohibition of entry to areas where Dangerous Work is being performed refer to JSSS 2.3 [*Prohibition of Entry*].

2.1.6 High and Low Temperatures and Humidity

(1) To avoid health hazards due to excessively hot, cold or humid working environments, the Contractor shall improve the work environment for all Contractor's Personnel by:

(a) Providing temporary covers and shade to protect workers from rain, hail, snow, sunlight and reflection from the surrounding wall and ground;

(b) Providing protection from any heat or cold source and provide adequate ventilation, heating or air conditioning for indoor working;

(c) Where permitted by the Engineer in hot climates, carrying out work during the night when temperatures and humidity are lower;

(d) Providing drinking water and supplement that allow salt replenishment at the work place;

(e) Providing a rest station with heating, air conditioning or shade near the work place, or providing other facilities equipped with accommodation that allow personnel who fall ill to lie down and recover;

(f) Allowing work breaks and reducing excessive and continuous working times; and

(g) Allowing an initial acclimatisation period for Contractor's Personnel to become used to the heat or cold.

(2) The Contractor shall ensure that workers wear moisture-permeable and loose-fitting clothing in hot climates and suitably warm, insulated and waterproof clothes in cool or cold climates.

(3) If any undesirable conditions are detected, the Contractor shall take appropriate measures to correct the situation, allowing Contractor's Personnel to rest or temporarily stop the work until the conditions improve.

(4) The Contractor shall monitor the health of Contractor's Personnel before and during the work, allowing Contractor's Personnel to take a rest and/or rehydrate as necessary and take further action if any additional abnormalities are observed.

2.1.7 Monitoring and Records

(1) The Contractor shall monitor the working environment and prepare regular daily, weekly and monthly records of dust, noise, air and water quality, inadequate natural ventilation, rainfall, snowfall, temperatures, humidity, wind speed and direction regularly ~~throughout the Time for Completion of the Works~~ until the Taking-Over Certificate is issued for the entire Works or any relevant part of the Works.

(2) The procedure for preparation and submission of such records shall be as stated in JSSS 1.32 [*Health and Safety Records*].

(3) The Contractor's monitoring and recording shall also cover:

(a) The pre-existent conditions for all periods of Dangerous Work;

(b) Dust at work places where excessive dust and waste material such as dirt, rocks, minerals, metals, carbon, cement, etc. is generated;

(c) Noise levels at work places that generate intense noise;

(d) Ventilation volume, temperature and concentration of carbon dioxide, carbon monoxide, oxygen, hydrogen sulphide, other toxic or dangerous gases at work places including tunnels and deep pits and Confined Spaces; and

コメントの追加 **[SS10]:** No. 33
JICA commented this shall be revised to "until the Taking-Over Certificate" or " until the Taking-Over Certificate is issued for the entire Works or any relevant part of the Works" as explained in the attached paper.
NK agreed to this revision.

(e) Illuminance at work place and walkways.

(4) The above monitoring shall be conducted separately from the environmental monitoring that may be required by the Laws of the Country and any environmental monitoring that may be separately specified in the Contract.

(5) For the following measurement items, if the following limits are violated, the Contractor shall take the measures prescribed in JSSS 1.22 [*Dangerous Work*], JSSS 2.1.5 [*Further Requirements for Dangerous Work*] and JSSS 2.3 [*Prohibition of Entry*].

(a) Values of limits of measurement items:

(i) Oxygen concentration less than 19.0% and more than 23.5%;

(ii) Hydrogen sulphide concentration more than 10 ppm (short-term exposure limit) or 5 ppm (long term exposure limit);

(iii) Carbon dioxide concentration more than 15,000 ppm (short-term exposure limit) or 5,000 ppm (long term exposure limit); and

(iv) Other Hazardous Substances either existing on the Site, used in or encountered on the Works: values of limits for other substances given in EH40/2005 Workplace Exposure Limits (third edition published 2018), issued by HSE, Table 1.

(b) Combustible gas and vapor concentration: in excess of 10% of the lower limit of flammability.

(6) The Contractor shall also monitor any vibration, settlement and other adverse effects arising out of the execution of the Works to ascertain if these are causing any adverse effect to the Works or to Other Properties whilst ensuring that no damage or weakening is caused.

(7) Monitoring shall be accomplished by the Contractor through regular inspection, measurement, survey, instrument monitoring and recording as determined by the nature and scope of the Works taking account of any additional requirements which may be specified in the Particular Safety Specification.

(8) Works that require monitoring shall include the following where any risk of damage is perceived by the HSO or Engineer:

(a) Excavation Works;

(b) Foundation Piling Works;

(c) Ground improvement;

(d) Temporary ground dewatering;

(e) Temporary Works such as major items of Earthwork Support, Cofferdams and the like; to demonstrate that they are performing safely, to the designed limits and for the intended purpose;

(f) ~~Other parts of the Works required to evidence the Contractor's compliance with the Contract;~~ ~~and~~

(g) ~~Other parts of the Works which may be specified in the Particular Safety Specification.~~

(f) Other part of the Works which may be specified in the Contract or the Safety Plan.

(9) The Contractor shall prepare a monitoring plan as a part of the Safety Plan or Method Statement for the above Works which shall describe:

コメントの追加 [SS11]: No. 34
JICA commented if (g) is revised to "the Contract", difference between (f) and (g) is not clear. Therefore, JICA proposed to combine (f) and (g) as follows:

"other part of the Works which may be specified in the Contract or the Safety Plan"

NK agreed to this revision.

(a) The Contractor's proposed monitoring criteria for vibration, settlement and all other potential effects of the Works, which by the Contractor's own calculations will ensure that no damage or weakening is caused to Other Properties;

(b) The types, locations and numbers of monitoring instruments and other equipment;

(c) The measurement frequency and recording methods; and

(d) The countermeasures to be applied when the actual measured values are close to or exceed the various minimum, intermediate and maximum criteria.

(10) The Contractor shall:

(a) Provide and maintain all survey equipment, monitoring and recording equipment to provide comprehensive, accurate and contemporary or live data with records, showing the performance characteristics of the Works;

(b) Provide qualified staff to perform the monitoring;

(c) Maintain and calibrate the monitoring instruments and equipment as necessary throughout the execution of the Works;

(d) Perform survey and monitoring on a regular basis throughout the execution of the Works;

(e) Confirm the occurrence and extent of any adverse effect arising out of the execution of the Works by means of regular inspections of all Other Properties;

(f) Take the measures prescribed when necessary to comply with the Contractor's obligations, propose remedial measures and implement such measures after receiving the consent of the Engineer;

(g) Evaluate the measurement results and modify the monitoring criteria as necessary; and

(h) Submit an evaluation report if necessary with any changes to the Safety Plan for Works to the Engineer before proceeding with the Works.

(11) Requirements for instrumentation systems shall be as follows:

(a) The Contractor shall select instruments and measurement methods that meet the purpose of the monitoring;

(b) The Contractor shall determine locations and numbers of measurement points which meet the purpose of monitoring and need for safety management. The locations of measurement shall be where measurement can be continuously made throughout the period of working;

(c) The instrumentation shall be regularly calibrated and protected against damage by the Contractor;

(d) The HSO and other relevant Contractor's Personnel shall analyse the data and take all necessary corrective action consequent to such monitoring to ensure the continued compliant and safe performance of the Works; and

(e) The Engineer shall be invited to attend the inspections and data collection to ensure the Contractor's compliance in accordance with JSSS 1.10 [*Engineer's Safety Representative*], JSSS 1.11 [*Safety Compliance Instructions from the Engineer*] and JSSS 1.16 [*Joint Site Safety Inspections*].

(12) Management based on Monitoring and Inspection

(a) Management by Visual Inspection:

If and when the Contractor finds any irregularity through visual inspection, the Contractor shall take necessary measures in accordance with the degree of

abnormality, including detailed research, urgent countermeasures, evacuation of workers.

(b) Management by Instrument Measurement:

Unless otherwise specified in the Particular Safety Specification, the Contractor shall determine control limit values based initially upon the allowable displacement or stress in the design, then the following stepwise control values shall be established by the Contractor and necessary measurement and related actions shall be taken.

The Contractor shall provide the following three (3) critical limits in his arrangements for the performance of the Works or in his design of the Temporary Works, and shall take appropriate action when any of these limits is reached:

(i) Primary Limit:

When measured values reach this limit, the Contractor shall increase the degree of care on the incident over inspections and commence preparing countermeasures which will be implemented if and when the measurement value reaches the Secondary Limit and obtain the Engineer's consent for such countermeasures.

The Contractor shall submit the measured values on a weekly basis to the Engineer unless otherwise instructed by the Engineer.

(ii) Secondary Limit:

When measured values reach this limit, the Contractor shall stop the relevant part of the Works and implement the countermeasures.

(iii) Control Limit:

When measured values reach this limit, the Contractor shall immediately stop the relevant part of the Works, advise all affected persons, prohibit entry of any unauthorised persons to the affected area(s), take counter measures to prevent failure, review and revise the Method Statement and Safety Plan, and comply with the Engineer's Instructions before proceeding.

(13) Contractor's Responsibility against damage to Property

Notwithstanding the requirements of this Clause of JSSS, the Contractor is reminded of his overall responsibility under the Contract in respect of damage to property.

The Contractor shall satisfy himself that the monitoring criteria and requirements specified above, or in other respective Chapters of JSSS and/or in the Particular Safety Specification, are sufficient to comply with his obligations under the Contract and he shall take any additional measures necessary to avoid damage to property.

2.2 RISK CONTROL AROUND THE SITE

2.2.1 General

(1) The Contractor is reminded of his obligations under GC 4.8 [*Safety Procedures*] and GC 4.22 [*Security of the Site*] to keep any unauthorised persons off the Site, and without prejudice to such obligations the Contractor shall take all necessary further measures under this Section to prevent any such unauthorised persons (including third parties, neighbours and particularly children) who may for example be living or working around the boundary of the Site or adjacent thereto, from entering the Site.

(2) In addition, the Contractor shall help to maintain communications with the local community near the Site in accordance with JSSS 2.2.6 [*Community Relations*].

(3) In addition to taking necessary action to keep any unauthorised persons off the Site the Contractor shall fully inform the relevant local organisations (e.g. police force) and if necessary request assistance to remove any trespassers from the Site. When requested by the Contractor, the Employer shall provide reasonable assistance to coordinate with the local organisations (including the police force).

(4) Such measures shall include (but are not restricted to) the following requirements of this Section.

(5) The Contractor shall also prevent access to the Site by any persons, including Contractor's and Employer's Personnel and any others who are under the influence of drink or drugs and also to prevent alcohol and drugs being brought onto the Site.

2.2.2 Working Area Perimeter

(1) Unless otherwise specified in the Particular Safety Specification, the Contractor shall:

(a) Enclose the perimeter of all working areas with secure fencing to prevent access to the Site by unauthorised persons;

(b) Maintain all such fencing in good condition, until such fencing is no longer needed and reinstate all affected areas;

(c) Provide secure entry points with lockable gates or barrier;

(d) Provide and maintain signs clearly advising/warning against entry; and

(e) Provide watchmen and lighting where, when and to the extent necessary to apprehend and evict any unauthorised persons (particularly children) from the working area, where such persons have breached the Site Perimeter and working area perimeter fencing.

(2) Unless otherwise specified in the Particular Safety Specification, working area perimeter fencing shall be temporary, constructed of new and durable materials and fit for the purpose intended.

(3) Full details of working area perimeter fencing including scope, dimensions and specifications shall be given in the Method Statement.

(4) The Contractor shall provide fall prevention measures such as temporary covers or barriers, with lighting and warning signs for any excavations outside the working area perimeter.

2.2.3 Measures for Road Occupation

(1) Before the Contractor carries out work on, in or under a public road, or uses it for access to the Site, based on the prior coordination with the relevant authorities by the Employer, in order to ensure safe and smooth traffic flow on the road, the Contractor shall:

(a) Prepare a road usage plan and submit it to the relevant authorities, and obtain necessary permits, prior to road use;

コメントの追加 [SS12]: No. 38
Cambridge Dictionary says "prevent something from XXing".
https://dictionary.cambridge.org/dictionary/english/prevent
We are informed, however, that "from" is often omitted in U.K. Well, let's omit it.
（大場）辞書をよく読むと「英国では"from"を省略しがち」とある。

→他の箇所と比較をして統一する
Depending on use of "prevent" "with" or "without" "from" -ing in JSSS, we make it consistent with/without "from".

NK: Both "with" and "without" "from" -ing" are used in JSSS. So we leave as they are.

(b) Obtain the approval and necessary permits of the relevant authorities before any road closure, diversion or other traffic restrictions are applied;

(c) Take necessary measures to ensure safe and smooth traffic flow on the road during the entire road usage period; and

(d) Take safety measures specified in JSSS 2.2.2 [*Working Area Perimeter*].

(2) The Contractor shall provide a Spotter (refer to JSSS 2.4 [*Spotters*] full time upon the Works (including all non-working periods) so that the Contractor's Personnel and the general public including road users, pedestrians and all others are effectively informed, controlled and protected against accident.

2.2.4 Temporary Road Signs

(1) For disseminating necessary information on roads adjacent to the Site, the Contractor shall:

(a) Provide standard road signs in the same colours and format as those used by the relevant authorities in the Country such as construction signs, direction, speed restriction, detour and roadwork signs;

(b) Signs shall be set in suitable places so as to give due warning, information and guidance to road-users and pedestrians alike; and

Signs shall be fit for purpose, fixed firmly so as not to break, fall or otherwise be damaged due to vibration, wind or other natural causes.

(2) Maintain the various signs regularly, including repairing, painting and cleaning. Ensure that all are clearly visible, well-lit or made of reflective materials so that they can be seen clearly from a distance at night.

2.2.5 Traffic Accident Prevention at Site Entrance

(1) In order to prevent traffic accidents occurring at or near the Site entrance, the Contractor shall:

(a) Provide warning signs adjacent to the Site entrance to inform drivers on the public road that the Site entrance exists and to inform of the possible emergence of construction traffic/equipment;

(b) Provide temporary traffic signals or Spotters for safe control of traffic (including construction traffic) and Contractor's Equipment, Contractor's Personnel and the general public including road users, pedestrians and all others to protect against accident;

(c) Provide designated areas for anyone entering the Site to board or be discharged from public and private transport;

(d) Provide pedestrian crossings and passages with Spotters or traffic signals; and

(e) Give priority to pedestrians and passing vehicles at the entrance.

2.2.6 Community Relations

(1) In order to maintain communications and improve safety for the local community near the Site, the Contractor shall:

(a) Cooperate with the Employer and assist in dissemination of comprehensive information about the Project to the nearby community; and

(b) If so required by the Particular Safety Specification, Conduct traffic safety and awareness activities for the local community.

(2) The Contractor shall ensure that all Contractor's Personnel are informed of the safety rules and any precautions regarding the safe passage of construction vehicles/equipment especially when children are arriving at or leaving from school.

(3) The Contractor shall report immediately to the Engineer if the local community raises any complaints or issues any requests to the Contractor.

2.3 PROHIBITION OF ENTRY

2.3.1 General

(1) The Contractor shall prohibit unauthorised personnel from entering areas where Dangerous Work is being undertaken.

(2) For general requirements of Dangerous Work refer to JSSS 1.22 [*Dangerous Work*].

(3) "Unauthorised personnel" in this context shall mean Contractor's Personnel, Employer's Personnel and any other persons who have not been properly trained or who are not properly equipped with PPE (including rescue equipment) and who are not carrying and displaying an official permit issued to them by the HSO, for that specific work place in accordance with JSSS 1.23 [*Permit to Work System – Dangerous Work*].

(4) Workers assigned to Dangerous Work shall be subject to the Permit to Work System described in JSSS 1.23 [*Permit to Work System – Dangerous Work*].

2.3.2 Demarcation and Requirements

(1) The Contractor shall clearly demarcate all areas where Dangerous Work is being carried out by the use of appropriate fencing, barriers, signage and lighting and shall control access to such areas with the full-time assignment of a Spotter.

(2) The Spotter shall be established outside the working area, and shall prevent the entry of unauthorised personnel and shall constantly communicate with and monitor the safety of assigned workers. The Spotter shall be equipped with radio or other efficient means of communication to act as a liaison with other relevant Contractor's Personnel.

(3) No-one, no matter their position of authority, should be allowed to enter, if not so authorised to do so and the Contractor shall ensure that Spotters do not face any adverse repercussions because of a refusal to allow access.

2.4 SPOTTERS

2.4.1 Definitions

For the definition of "Spotter", refer to JSSS Annex1.1 [*Definitions and Abbreviations*].

2.4.2 Duties

Duties include for example:

(1) Preventing unauthorised personnel from entering areas where Dangerous Work is being carried out.

(2) Giving appropriate guidance and signals during operation of Contractor's Equipment to prevent the equipment tipping, overturning or falling.

(3) Giving appropriate guidance and signals to prevent Contractor's Personnel from being struck or pinned by Contractor's Equipment.

(4) Assisting drivers of vehicles including trucks and operators of other Contractor's Equipment in positioning their vehicles particularly when manoeuvring.

(5) Directing operators and drivers to prevent Contractor's Personnel, Contractor's Equipment, Goods in transit, transport and the like from coming into contact with Overhead Services as defined in JSSS 3 [*Existing Underground, Concealed and Overhead Services*] when working within close proximity and preventing same from encroaching upon minimum allowable distance from Overhead Services.

(6) Controlling pedestrian and vehicular traffic, Contractor's Personnel and Contractor's Equipment on roads and footpaths on or adjacent to the Site, adjacent to buildings, Operational Areas, places with poor visibility, slopes and vertical drops, places where there is risk of falling or landslide and places where excavation and transporting equipment perform Excavation Works close to workers.

(7) Monitoring working locations and conditions and preventing any persons from entering areas where Dangerous Work is being carried out or where there is any risk of potential injury and accident.

(8) Any other similar duties and assistance.

2.4.3 Placement

(1) The Contractor shall provide Spotters as appropriate to the Site situation and the work methods employed.

(2) The Contractor shall ensure that the Spotters are informed about the Site conditions and accident prevention.

2.4.4 Safety

The Contractor shall:

(1) Ensure the safety of Spotters when directing vehicles or Contractor's Equipment.

(2) Ensure that Spotters and drivers agree on hand signals before assisting with vehicle manoeuvring.

(3) Instruct Spotters to maintain visual contact at all times with the driver during vehicle manoeuvring.

(4) Instruct drivers to stop manoeuvring immediately if they lose sight of the Spotter.

(5) Not give Spotters additional duties while they are already acting as Spotters.

(6) Instruct Spotters not to use personal mobile phones, personal headphones, or other items which could pose a distraction during spotting activities.

(7) Provide Spotters with high-visibility clothing, especially during night operations.

2.4.5 Signals

(1) To avoid the risk of injury to the Contractor's Personnel when operating Contractor's Equipment, the Contractor shall establish a standardised signal system and appoint a Spotter to give necessary signals to the Contractor's Personnel.

(2) The Contractor shall ensure that all Contractor's Personnel understand and comply with the signals relating to their assigned work task.

(3) The Contractor shall inform and remind all Contractor's Personnel including those designated as Spotters, of the established standardised signal system as follows:

(a) By training all personnel when they first start work at the Site;

(b) By re-confirming with the all personnel in the TBM before the start of work each day; and

(c) By posting signboards on Site where required showing the standardised signals and placing a smaller-sized sticker version directly on the concerned Contractor's Equipment.

2.4.6 Qualification of Personnel

The Contractor shall ensure that all Spotters possess sufficient experience and ability and are adequately trained and supervised to perform their duties.

2.4.7 Communication Tools

The Contractor shall, when necessary, provide and maintain any necessary equipment such as hand-held radios, to ensure effective and safe communications and train all Spotters in their use.

2.4.8 PPE

The Contractor shall ensure that all Spotters are provided with PPE including hats, whistles, high visibility jackets, flags, illuminated batons, etc. to safely and adequately perform their duties.

2.5 FALL PREVENTION

2.5.1 General Items

(1) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for fall prevention complying with OSHA 1926 Subpart E [Personal Protective and Life Saving Equipment], Subpart M [Fall Protection] and the further requirements for fall protection for workers contained in the following Subparts of OSHA:

(a) OSHA 1926 Subpart L [Scaffolds];

(b) OSHA 1926 Subpart CC [Cranes and Derricks in Construction];

(c) OSHA 1926 Subpart R [Steel Erection];

(d) OSHA 1926 Subpart S [Underground Construction, Caissons, Cofferdams and Compressed Air];

~~(e)~~ OSHA 1926 Subpart V [Electric Power Transmission and Distribution]; ~~and~~

(f) OSHA 1926 Subpart X [Stairways and Ladders]; and

(g) OSHA 1926.105 [Safety Nets].

(2) This Section provides fall prevention solutions for a typical range of example circumstances but this is not intended to be restrictive in extent. The Contractor shall provide fall prevention solutions wherever demanded by the nature of the particular part of the Works.

(3) As a general rule, the Contractor shall take Personal Fall Restraint System (PFRS) measures wherever practicable rather than Personal Fall Arrest System (PFAS) measures.

2.5.2 Height Thresholds

The threshold for fall protection in construction work is 2 m.

The Contractor shall provide fall protection for all personnel, removing all fall hazards whenever any personnel are working 2 m or more above a lower level.

2.5.3 Facilities for Ascending and Descending

When carrying out work at heights of 2 m or more, the Contractor shall provide facilities that enable the Contractor's Personnel to safely ascend and descend from such work levels.

2.5.4 Risk Assessments

(1) Where there is any risk of fall for any part of the Works at the Site, the Contractor shall conduct a pre-assessment of the various types of fall protection systems to be used and the selected alternatives shall be shown in the Safety Plan.

(2) In advance of the commencement of any parts of the Works, the Contractor shall carry out such further risk assessment as necessary, including checking the following and recording the results:

(a) Working areas and the conditions of adjacent areas;

(b) Position, condition and surroundings at each anchorage for separately securing working line, lifeline or nets;

(c) Status of access leading to working areas and any anchorages; and,

(d) The presence or absence of protrusions where there is a risk of cutting or chafing of working line or lifeline or other fall prevention systems and their position and condition.

コメントの追加 [SS13]: There is (e) the erection of tanks and communication and broadcast towers in Subpart E §1926.105 (Safety Nets) in the last issue. It is deleted or missing in this issue. Is there any reason to delete this ? If the reason is only overlook it, please add this 1926.105 (Safety Nets).

2.5.5 Handrails

(1) The Contractor shall provide handrails at places where there is risk of fall.

(2) Handrails shall be complete with top-rails, minimum 85 cm high and mid-rails at a height of 35 – 50 cm.

(3) Top-rails shall be designed to withstand 90kgf (approx. 880N) ~~883 N~~ of horizontal force and mid-rails 70kgf (approx. 690N) ~~686 N~~ of horizontal force and sufficient uprights shall be provided to sustain these forces.

(4) Handrails shall be fit for purpose, of rigid and sound condition, securely fixed, without excessive corrosion, deformity or damage of any kind.

(5) If handrails are temporarily removed for example to permit work to be carried out, the Contractor shall provide alternative safety measures including for example:

(a) Displaying appropriate warning signs;

(b) Assigning a Spotter to direct non-essential Contractor's Personnel away;

(c) Providing alternative fall prevention systems to Contractor's Personnel in that area including for example PFRS or PFAS or safety nets;

(d) Prohibiting entry to the working area of any unauthorised Contractor's Personnel; and

(e) Handrails shall be restored immediately after the necessity for removal has ended.

2.5.6 Toeboards

(1) Toeboards shall be provided to bottom of all handrails to prevent risk of Falling Objects.

(2) Toeboards shall be minimum 10cm high from top edge to the level of the Working Platform, runway or ramp.

(3) Where material is piled to such height that a 10cm toeboard does not provide protection, panelling from floor to mid-rail, or to top-rail shall be provided.

2.5.7 Preventing Falls from Walkways

(1) Walkways

For the purposes of interpretation:

"walkways" mean route or passage for safe movement of pedestrians including walkways, bridge type walkways, covered walkways, ramps, stairways, ladders and stepladders.

(2) Safe Routes

The Contractor shall provide walkways leading to, within and around the Site and any working areas within the Site.

These shall be designed and constructed to ensure the safe passage of Contractor's Personnel and shall be provided with temporary lighting and effectively maintained at all times.

The Contractor shall display signs clearly indicating the location, intended use and any restrictions and extent with directions so that the Contractor's Personnel can adhere to the routes.

Other construction activities will be prevented from obstructing these routes.

(3) Handrails

At any point where there may be a risk of Contractor's Personnel falling from temporary walkways, the Contractor shall provide handrails as specified in JSSS 2.5.5 [*Handrails*].

コメントの追加 [SS14]: No. 40
Modified as JICA commented that the values shall be understandable.
NK has agreed to specify values to indicate original ones.

コメントの追加 [SS15]: JICA added in relation with their comment to 6.4.1.
NK agreed.

Alternatively, the Contractor shall provide fall prevention equipment with the same or better functionality.

2.5.8 Preventing Falls by Providing Temporary Working Platforms

(1) The Contractor shall provide a temporary Working Platform where Contractor's Personnel are carrying out any operation at a height 2 m or more above the base and where there is any risk that Contractor's Personnel may fall.

(2) Temporary Working Platforms shall be constructed from steel tubular Scaffolding, system Scaffolding or other safe and secure types.

(3) Temporary Working Platform shall always have handrails.

(4) If handrails are temporarily removed for construction purposes, the Contractor shall take the measures described in JSSS 2.5.5 [*Handrails*].

2.5.9 Preventing Falls from the Ends and Openings of Working Platforms

(1) The Contractor shall take measures to prevent any falls from ends, edges and around any openings in Working Platform.

(2) The Contractor shall provide handrails to all ends, edges and openings.

(3) Alternatively, the Contractor may place covers over any openings, each of sound construction and designed with a bearing capacity of at least twice any likely superimposed load, including any materials, Plant or Contractor's Personnel.

(4) If for any reason it is not possible to provide handrails around working areas, or to provide covers or when covers are temporarily removed for construction purposes, the Contractor shall take the measures described in JSSS 2.5.5 [*Handrails*].

2.5.10 Measures for Preventing Falls during Excavation Works

The Contractor shall take all necessary measures to prevent falls during Excavation Works including for example:

(1) Providing fall prevention systems including temporary handrails or barriers, PFRS, PFAS or rope access.

(2) Taking appropriate measures to ensure that earth slopes do not collapse due to the fixing of any fall prevention system or to any contact of the ropes with the slope surfaces.

(3) Providing safe measures to allow Contractor's Personnel to escape from or move around any excavated slope. If it is not possible to take such measures due to the nature of the work, the Contractor shall install main ropes and have Contractor's Personnel use PFRS or PFAS. In such case, the main ropes shall be anchored securely to prevent them becoming loose or detached.

(4) Installing handrails where the slope shoulder is used as a walkway or passageway.

(5) Installing safe crossings over trench excavations at a maximum of 30m intervals and prohibiting all Contractor's Personnel from crossing on the shoring system.

(6) Providing safe means of access and egress using stairways, ladders, ramps and the like to all excavations such as trench, basement, footing excavations, which are 1.2 m or more in depth, generally requiring no more than 7.5m of lateral travel for Contractor's Personnel.

(7) Prohibiting all Contractor's Personnel from crossing on struts of Earthwork-Support.

2.5.11 Measures for Preventing Falls during Rope Access Work

(1) The Contractor shall take all necessary measures to prevent falls during rope access work including for example:

(a) Installing a lifeline to which the PFAS is attached in addition to the working line to which the PFRS is attached; and

(b) Ensuring that the working line, lifeline and harness have sufficient strength and that they have not suffered any damage, abrasion, deformation or corrosion and that the Contractor's Personnel are trained in the use and that they use them properly.

(2) In relation with the working line, lifeline and harness, the Contractor shall ensure that:

(a) The working line and lifeline are securely anchored to independent rigid supports vertically above the work location and cannot be detached;

(b) The working line and lifeline are of sufficient length to allow the Contractor's Personnel to move up and down safely;

(c) Measures have been taken to prevent cutting or chafing, such as providing covers, where there is a risk that the working line or lifeline may be cut or chafed due to protrusions;

(d) That the working line is anchored to two or more independent strong supports; and

(e) The positioning device shall be securely connected to the working line with connectors and the connecting devices shall be compatible with the working line used.

(3) The Contractor shall provide the following particular information in the Safety Plan and shall ensure that all Contractor's Personnel engaged in rope work are fully qualified and informed when doing so, including advising them of:

(a) Location of each anchorage used to secure the working line and lifeline;

(b) Types and strengths of the working line and lifeline to be used;

(c) Lengths of the working line and lifeline to be used;

(d) Protrusions where the ropes may be cut or chaffed and measures to prevent this; and

(e) Measures to prevent Contractor's Personnel engaged in securing the working line and lifeline to the anchorages from falling.

(4) The Contractor shall also provide measures to prevent the risk of accident to any personnel from Falling Objects; by using covered walkways and PPE.

(5) The Contractor shall appoint an Operation Leader who shall work with the rope work team at all times throughout their assignment and direct the work based on the Safety Plan and perform the following duties:

(a) Inform all Contractor's Personnel engaged in rope work of the content of the Method Statement and Safety Plan before commencement of the work;

(b) Check all equipment to be used on the day prior to commencement of the work, and repair, maintain or replace any equipment immediately if any defect is identified;

(c) Permit the Contractor's Personnel to commence work only after the measures have been taken to provide all working lines, lifelines, PFRS, PFAS and PPE; and

(d) Ensure Contractor's Personnel use PFRS and PFAS correctly and have them fix the PFAS to the life lines.

2.5.12 Further Measures for Contractor's Personnel

The Contractor shall take all necessary further measures to prevent falls during the Works including, for example, taking the following measures before any work commences:

(1) Conduct safety induction and education courses regarding fall risks for all Contractor's Personnel who shall work on locations and operations where there is a risk of falling.

(2) Prohibit the unauthorised removal of any fall prevention equipment and educate Contractor's Personnel on the dangers of this action.

(3) Educate Contractor's Personnel on the proper storage and management of all safety equipment, including for example PFRS, PFAS and PPE.

(4) Stop the work if there is a risk of bad weather such as strong wind, heavy rain, or snow.

2.5.13 PPE for Fall Prevention

The Contractor shall comply with the following requirements when Contractor's Personnel are subject to fall risks:

(1) The Contractor shall provide PFRS as follows:

(a) PFRS shall be the same as PFAS specified below but designed to restrict the movement of workers and prevent them from reaching the edge of or any openings in the working area and therefore eliminating the risk of a fall; and

(b) PFRS shall comprise of either a Safety Belt or Safety Harness, together with an anchorage, connectors and other necessary equipment, typically including a lanyard, lifeline and other devices.

(2) The Contractor shall provide PFAS as follows:

(a) The PFAS shall be the full harness type and shall comprise of a body harness, connectors, lanyard, deceleration device, lifeline, anchorage, or suitable combination of these;

(b) The use of a Safety Belt for PFAS is prohibited except where there is any risk of the Contractor's Personnel hitting the lower surface when the full harness type is used and the total fall clearance distance calculated as below, is less than the distance between the point at which a worker would be anchored and any lower level;

The total fall clearance distance for PFAS with a shock-absorbing lanyard is calculated as the total of free fall distance, deceleration distance, D-ring shift, back D-ring height, and safety factor. (Refer to OSHA Technical Manual General Information, Section V: Chapter 4 Fall Protection in Construction, III. Measurements for Assessing Fall Hazards and Controls, A. Total Fall Clearance Distance for PFAS.).

(c) PFAS shall withstand the total force exerted on the system by the Contractor's Personnel falling, including the weight of the system itself; and

(d) For shock absorbers, an appropriate specification and type shall be selected according to the free fall distance calculated from the Contractor's Personnel's working position (height of anchor point, length of lanyard, etc.).

(3) The PFRS and PFAS shall bear the name of the manufacturer and the date of manufacture and shall be easily visible.

(4) Inspection of any safety equipment.

Before starting work using PFRS or PFAS, the systems and anchorages to which the systems are to be attached shall be inspected and defective, damaged, worn-out or missing parts or components shall be replaced.

2.5.14 Ladders and Stepladders

For further requirements, refer to JSSS 6.4 [*Walkways*].

2.5.15 Work on Roofs and Other Areas

(1) Where Contractor's Personnel are carrying out work on roof at a height of 2 m or more, PFRS or PFAS shall be used with secure and safe anchorages.

(2) The Contractor shall, ensure that PFRS or PFAS are inspected before each use and declared safe for use with no defective, damaged, worn-out or missing parts or components.

(3) Prevention of Fall Risks on Floors, Fragile Roofs and Other Surfaces

When working on, accessing or crossing, floor or roof areas (including uncompleted areas under construction), or fragile roofs such as those covered with slates, tiles or other non-loadbearing coverings or where there is any risk of breaking and/or falling through such areas, the Contractor shall provide continuous bearing boards for workers to walk on, with a minimum width of 60 cm or sufficiently wider to provide safe transit and where necessary to spread the bearing load on the surface and avoid penetration. The boards shall be fixed together and secured to the underlying surface by tying with ropes or clips to prevent any movement.

Unless otherwise approved by the HSO, handrails shall be provided to one or both sides.

If the underlying surface or roofing is too fragile for such measures and access is required, the Contractor shall provide an independent Scaffolding boarded walkway with handrails both sides, which does not bear upon the existing roof but that is supported independently by a Scaffolding structure.

(4) Demolition or Alteration of Buildings and Structures

When carrying out demolition or alteration of buildings or structures and where there is a risk of Contractor's Personnel falling, the Contractor shall take the following measures:

(a) Appoint an Operation Leader to be engaged on the work;

(b) Safely supervise the work; and

(c) Inform and train Contractor's Personnel engaged in the said work so that they are aware in advance of the work methods and procedures.

2.5.16 Safety Nets

(1) The Contractor shall provide safety nets when workplaces are more than 7.50m above the lower ground level or water surface level and where the use of another type of fall prevention system is impractical or has been removed.

(2) Operations shall not be undertaken until the net is in place and has been inspected and tested.

(3) Nets shall extend 2.5m beyond the edge of the work surface where Contractor's Personnel may be at risk and shall be installed as close under the working surface as practical but in no case more than 7.50m below such work surface.

(4) Nets shall be hung with sufficient clearance to prevent user's contact with the surfaces or structures below. Such clearances shall be determined by impact load testing.

(5) The mesh size of nets shall not exceed 15 cm by 15 cm. All new nets shall bear a label of proof test from the manufacturer that they can withstand ~~23,700 Nm~~ 17,500 lbf・ft (approx. 23.7 Nm) minimum impact resistance. Edge ropes shall provide a minimum breaking strength of ~~22,261N~~ 5,000 lbf (approx. 22.3 kN).

(6) Forged steel safety hooks or shackles shall be used to fasten the net to its supports.

コメントの追加 [SS16]: As same as comment No.40, original unit and SI Unit are specified.

2.6 FALLING OBJECTS

2.6.1 General

The Contractor shall take all necessary measures to avoid danger and prevent damage and injury to Contractor's Personnel, Employer's Personnel and any other persons including third parties that are on or adjacent to or in the vicinity of the Site whether connected with the Works or otherwise, and who may be at risk from Falling Objects.

In general, this shall be accomplished by:

(1) Providing secure temporary barriers to prevent or capture Falling Objects, designed by the Contractor to be of sufficient strength to capture all Falling Objects without perforating and where necessary shall be of an aesthetic design to be approved by the Engineer.

(2) Providing a safe means of raising and lowering Goods, tools, waste and debris.

(3) Providing an exclusion zone with temporary barriers and all other necessary measures to prevent persons and traffic from entering areas where Falling Objects could be a risk, including providing pedestrian and traffic diversions.

Exclusion zone shall also be provided where protective mesh sheets or toeboard are not installed or where they are temporarily removed due to the nature of the work.

(4) Using PPE.

(5) Providing coloured warning tape, barriers and signage warning of "DANGER FALLING OBJECTS" in addition to all other preventive measures.

2.6.2 General Preventive Measures

(1) All horizontal boarded areas of Scaffolding shall be provided with substantial and continuous toeboards to all edges in accordance with JSSS 2.5.6 [*Toeboards*].

(2) Mesh sheet (debris net) shall be provided under and around all edges to cover all openings of Scaffolding horizontal boarded areas.

(3) Continuous and secure debris nets shall be provided to vertical sides of all Scaffolding or openings of external walls where there is no Scaffolding.

(4) Safe walkways with secure roof and walls shall be provided over entrances and exits.

(5) Protective canopies, safety fans or projecting shelves shall be provided to the edge of all roofs and to all vertical faces wherever there is a risk particularly over entrance and exits, working areas, walkways and roads, including those on areas beyond the Site boundary.

(6) Protective roofs shall be provided wherever there is a risk over working areas, walkways, footpaths and roads.

(7) All protective structures including roofs, canopies, safety fans, projecting shelves over walkways shall be fit for the purpose intended and provide a secure protective barrier capable of supporting Falling Objects and of sufficient size and dimensions to give full coverage and protection.

(8) Personnel must be prevented from entering any areas below Scaffolding where there is a risk of Falling Objects through the provision of barriers and signage.

(9) If any protection is temporarily removed then a Spotter shall be assigned to prevent personnel entering the hazard area.

(10) A Spotter shall also be assigned to direct traffic and pedestrians where diversions are necessary.

(11) Use and control of mesh sheets to prevent objects from falling shall be as follows:

(a) Sheet shall have a mesh size of 12 mm or less or a mesh size corresponding to the size of expected Falling Objects;

(b) Sheet shall comply with BS 7955, composed of polyester material, reinforced as necessary to withstand the impact load of Falling Objects;

(c) Sheets that are damaged or which contain any irregularity shall not be used;

(d) If sheet is removed temporarily to suit the work operation, measures must be applied to avoid any risk of accident whilst it is removed and it must be restored immediately after the work operation is completed;

(e) Mesh sheets shall be inspected at least once a week and replaced immediately if any damage is found; and

(f) If there are any Falling Objects on the mesh sheet, these shall be removed before any work starts. The occurrence shall be reported to and investigated by the HSO to prevent any reoccurrence.

(12) When the work place is close to public or private areas, roads, footpaths, buildings or houses and the like along or outside the Site boundary and where there is any risk that Falling Objects could endanger the safety of traffic and third parties in such areas, and in addition to the above preventive measures, the Contractor shall take all responsibility, make all necessary arrangements with such third parties and/or all relevant authorities, insure, serve all notices, pay all charges and provide all necessary protective services and facilities including:

(a) Provision of mesh screens, safety fans, projecting shelves, temporary roofs over walkways or the like to protect such public or private areas, roads, footpaths, buildings or houses and all property, traffic, pedestrians and other persons thereon; and

(b) Safe and efficient diversion of all traffic and persons (in addition to the above or if the above measures cannot be taken) by providing all temporary barriers, signals, lighting and signs and placing a Spotter to direct traffic and pedestrians.

2.6.3 Falling Tools and Equipment

(1) The Contractor shall take appropriate measures to avoid the risk of injury or damage arising from dropped or falling tools including for example the following:

(a) Securing tools and materials;

(b) Use tool holsters, pouches, lanyards, etc.;

(c) Use debris nets, catch platforms or canopies to catch or deflect falling tools; and

(d) Use tethered tools, either with built-in connection points placed by the manufacturer or retrofitted connection points and connect tools to a lanyard. Tools can either be connected to a worker through a tool belt, harness or wristband, or anchored to a fixed structure.

2.6.4 Preventive Measures against Dust and Debris

(1) For work where there is a risk of ejected or windblown dust and debris, (for example from stone crushing, concrete batching, cutting and grinding operations and the like), the Contractor shall:

(a) Enclose areas where such operations are taking place and provide protective screens or covers on storage areas;

(b) Maintain equipment and tools in good condition, use of covers and safety guards and procedures for preventing danger due to tool breakage etc.; and

(c) Ensure that workers use appropriate PPE such as head, face and eye protection to

prevent accident or injury.

(2) In strong winds and storms, the Contractor shall take measures to prevent wind-borne materials, etc. according to JSSS 2.7.3 [*Measures for Strong Wind and Storms*].

2.6.5 Preventive Measures against Dropping Objects

(1) The Contractor shall prohibit Contractor's Personnel from throwing or dropping objects (e.g. Scaffolding clips), generally and in no event from heights of 3m or above.

(2) The Contractor shall use a crane to bring objects down from heights of 3m or above. Alternatively, the Contractor may provide enclosed chutes to bring down objects and in addition, shall prohibit entry to the chute area or assign a Spotter.

(3) Chutes shall be designed to prevent objects being scattered over the surrounding area.

2.6.6 Prevention of Accumulation of Goods at Height

(1) The Contractor shall prohibit the accumulation and storage of Goods at high levels particularly on Scaffolding and in locations where such Goods are at any risk of falling due to the effect of wind, vibration, water or gradient.

(2) Goods shall generally not be stored or allowed to accumulate within 1m of platform or work floor edges and openings or the like.

(3) When temporarily stored at height, Goods shall be restrained by ropes or sheets to prevent them from falling or slipping.

(4) Goods that are likely to scatter or spread, shall be suitably constrained by tying, boxing or bagging.

2.6.7 Working Above or Below Other Persons

(1) As a general and prevailing rule, the Contractor shall prohibit his workers from working concurrently above or below other persons. To achieve this the Contractor shall carefully coordinate the work location, content, timing of the work operations between his assigned workers.

(2) In exceptional circumstances where this is unavoidable due to the nature of the work, the Contractor shall increase the supervision and the safety procedures described in this Section to ensure that the risk from Falling Objects is avoided. Workers shall be given further training, provided with PPE and additional working equipment (e.g. slings for tools, safety nets and/or hanging bags) in order to provide additional protection and a Spotter shall be assigned while such overhead operations are being carried out.

2.6.8 Loose Rock, Boulders and the like

(1) If loose rock, boulders, trees and the like, are positioned above working areas and where there is any risk that these may pose a danger to Contractor's Personnel or Contractor's Equipment working below, unless otherwise instructed by the Engineer, the Contractor shall carefully remove such items and if necessary:

(a) Propose further safety measures to the Engineer;

(b) Consult with the Engineer and if appropriate, obtain the Engineer's Instructions for the required further measures to be taken, such as installation of temporary protective barriers; and

(c) Prohibiting Contractor's Personnel from entering the working areas until the above items have been removed or the further measures have been taken.

2.7 ADVERSE WEATHER REQUIREMENTS

2.7.1 Preventive Measures

(1) Whenever adverse climatic conditions render it dangerous to continue, the Contractor shall stop affected work at the Site, take preventive measures to ensure the safety of all Contractor's Personnel engaged on that work and inform the Engineer accordingly.

(2) Before, during or after adverse climatic conditions, the Contractor shall:

(a) Stop work at heights if there is any danger of falling;

(b) Stop work if there is a possibility that such work may be dangerous due to possibility of electrical shock, slippery conditions or poor visibility and the like during rain, snow or fog, and inform the Engineer accordingly;

(c) Inspect the Works and all Goods intended to be incorporated in the Works or used thereon (including any temporary structures) for damage and risk of causing any danger before resuming work. If any damage or risk is found, the Contractor shall immediately take necessary action to prohibit entry in accordance with JSSS 2.3 [*Prohibition of Entry*], inform the Engineer accordingly and if appropriate, request his instructions; and

(d) Inspect Goods for damage and risk of any danger before resuming work. If any damage and risk is found, use Contractor's Equipment and Temporary Works only after making the necessary repairs or replacement.

2.7.2 Measures for Heavy Rain

When heavy rainfall takes place or is anticipated at the Site and the surrounding area, the Contractor shall:

(1) Take measures to prohibit entry in accordance with JSSS 2.3 [*Prohibition of Entry*] at the following locations:

(a) Places where landslides could be anticipated;

(b) Places where there is a risk of flow of material and equipment and soil runoff; and

(c) Places where there is a risk of damage due to flash floods, lake or river flooding.

(2) Take measures to prevent the Goods from being submerged, washed away or overturning, for example preparing, wherever possible, stock yard at a safe place, evacuating materials and equipment to a safe place, etc.

2.7.3 Measures for Strong Wind and Storms

For strong wind and storms at the Site and the surrounding area, the Contractor shall:

(1) Take measures to prevent capsize, overturn or movement of Contractor's Equipment particularly tall equipment such as cranes, pile drivers, pile drilling rigs and the like.

Where possible, lower the boom of tall equipment and tie to a secure anchor with steel cable to ensure stability and prevent any risk of overturning.

(2) Always store and/or if necessary evacuate Goods to a sufficient distance away from overhead power and communication lines to prevent damage and injury.

(3) Take the following measures, as necessary, for Scaffolding and Working Platforms.

(a) Remove or furl mesh sheets to reduce wind load;

(b) Prevent Scaffolding from collapsing or sliding by dismantling Scaffolding or adding or reinforcing wall connectors;

(c) Dismantle or reinforce Scaffolding projecting from buildings by supporting ropes, cables or additional struts and bracing; and

(d) Securing Goods on Scaffolding, or lowering them to ground level.

(4) Discontinue work at elevated places.

(5) Take measures to prevent scattering of Goods, waste and debris.

2.7.4 Measures for Heavy Snow and Ice

For heavy snow or ice at the Site and the surrounding area, the Contractor shall:

(1) Take fall prevention measures in snow such as setting of poles or red flags to demarcate roads, footpaths and waterways.

(2) Take fall prevention measures for workers in icy conditions or snow, by ice or snow removal on roads, platforms, stairs, ramps, slopes, passages, Scaffolding, canopies, safety fans, projecting shelves and the like.

(3) Remove snow from roofs, canopies and signs, notice boards.

(4) Prohibit works on Scaffolding, Working Platforms or staging if snow or ice is present except after its careful removal.

2.7.5 Measures for Lightning

(1) Where there is any risk that lightning may affect work on or near tall objects, or near explosive or conductive metals, the Contractor should recognise lightning as an occupational hazard and take precautions to prevent exposure of all Contractor's Personnel thereto.

(2) Before commencing any outdoor work, the HSO shall ensure that local weather forecasts have been checked and wherever necessary and possible, that work has been rescheduled to avoid ~~workers~~ Contractor's Personnel being caught ~~outside~~ in hazardous weather conditions.

(3) When working outdoors, Operation Leaders and workers shall continuously monitor weather conditions so that wherever possible they remain aware of the likelihood of thunderstorms.

(4) The HSO shall identify and inform workers of buildings to be used for shelter when ~~heard~~ thunder is heard or lightning is observed. Such shelters shall be fully enclosed, substantial and preferably shall have earthed electrical wiring and plumbing. ~~Workers~~ Contractor's Personnel shall remain in shelters for at least 30 minutes after hearing the last noise of thunder.

(5) If suitable buildings are not immediately available, ~~workers~~ Contractor's Personnel shall be instructed to shelter in enclosed rubber-tyre vehicles with windows closed and to remain there for at least 30 minutes after hearing the last noise of thunder. Tracked excavators, cranes or similar types of Contractor's Equipment shall not be used.

(6) The Safety Plan shall include lightning safety procedures which shall:

(a) Inform of all required actions when thunder is heard, lightning is seen ~~personnel hear thunder or see lightning~~, or perceive other signs of approaching thunderstorms is observed;

(b) Indicate how information is to be disseminated amongst personnel on the Site;

(c) Identify locations and requirements for safe shelters;

(d) Indicate response times necessary for all personnel to reach safe shelters; and

(e) Specify methods to determine when to stop and resume affected work activities.

(7) The Contractor shall display signs with information on lightning safety.

(8) The Contractor shall provide adequate training to all personnel on lightning safety with

コメントの追加 **[SS17]:** No.42
JICA replaced, added and deleted as shown in red letters with blue shading.
NK agreed.

the safety induction training required by JSSS 1.20 [*Safety Induction Training*].

(9) Unless otherwise determined to be safe by the HSO, the Contractor shall prohibit any hazardous exposed work and external work at heights during thunder storms including for example:

(a) work on or from Scaffolding;

(b) work on or by cranes or hoists or similar Contractor's Equipment;

(c) work on tops of walls, exposed, elevated slabs or roofs;

(d) ~~work on the~~ erection or removal of steel structures; ~~and~~

(e) Work on the erection of steel reinforcement and other metal components.

(f) outdoor work of power utility; and

(g) work of plumping and pipe fitting.

2.7.6 Measures for Earthquake and Tsunami

To the extent that time is available and forewarning is given, the Contractor shall evacuate workers to the designated meeting place in the event of earthquakes or tsunamis when the relevant authority issues a warning for the occurrence or prediction of earthquakes or tsunamis.

2.7.7 Inspection of Temporary Works after Adverse Weather and Earthquake

Following the occurrence of any adverse weather or after any earthquake and before re-commencing any work, the Contractor shall:

(1) Perform a visual inspection.

(2) Check all measured values of any instruments to ensure the safety of Temporary Works.

(3) When abnormality is found in instruments, recalibrate or replace them.

(4) If any damage or fault is found in the TW, immediately carry out repair, replacement and/or reinforcement works, as necessary.

(5) Keep the Engineer informed of inspection and monitoring results.

コメントの追加 [SS18]: JICA comment that they cannot know what kind of work on cranes is expected. (Operators work in cranes.), so "on" may not necessary.
Can you show example what you assume work on cranes.

コメントの追加 [SS19]: JICA added as the guideline stipulates.
NK will add them to finish our work.

2.8 FIRE PREVENTION

2.8.1 Fire Prevention and Firefighting Facilities

Unless otherwise specified in the Particular Safety Specification, the Contractor shall take measures and provide facilities for fire prevention and fire-fighting and shall ensure that such measures are readily available and at all times at the Site and at any offices and accommodation for Contractor's and Employer's Personnel.

(1) Fire Response Plan:

The Contractor shall:

(a) Prepare a Fire Response Plan detailing the proposed fire prevention and fire-fighting measures and facilities and include this as a part of the Safety Plan;

(b) Designate a person (or persons) responsible for fire prevention, fire-fighting and also for evacuation in the event of a fire;

(c) Prepare a firefighting training plan as a part of the fire prevention and fire-fighting plan; and

(d) Carry out all training and keep records of such training in accordance with JSSS 1.19.6 [*Records of Education and Training*].

(2) Fire Response Measures and Facilities:

The Contractor shall:

(a) Provide fire hoses, hose-reels, fire hydrants and similar equipment, and temporary water supply where considered necessary by the HSO;

(b) Provide fire extinguishers and fire blankets according to the area and purpose of use, such as for ordinary fires, oil fires, electric fires and the like;

Fire extinguishers shall be regularly inspected, refilled, serviced and certified as such by a qualified and independent safety company approved by the Engineer;

(c) Prohibit smoking anywhere on the Site other than designated smoking areas, and implement effective fire prevention measures by placing buckets filled with water or sand in smoking and other dangerous areas; and

(d) Train Contractors Personnel and ensure that a team or teams is available to respond in the event of a fire and in advance or in place of attendance by any public firefighting service.

2.8.2 Measures for Evacuation

In the event of a fire, the Contractor shall facilitate evacuation by:

(1) Creating an evacuation route map if necessary and post this in easy-to-see places.

(2) Display the evacuation routes as necessary at all work places.

(3) Install multiple evacuation routes and staircases for buildings with 2 or more floors and a capacity of 30 people or more.

(4) Establish a communication method to inform the Contractor's Personnel, Employer's Personnel and any other persons that are on the Site so that they are aware of danger and that they must evacuate due to a fire.

2.8.3 Management of Flammable and Combustible Materials

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS and unless otherwise approved by the Engineer, the Contractor shall take necessary measures for fire prevention complying with OSHA 1926.152 [Flammable liquids] and OSHA 1926.153

[Liquefied petroleum gas (LPG)] or other relevant OSHA standards for the use and storage of flammable and combustible materials and gases, including gasoline, kerosene, light oil, heavy oil, creosote oil, gear oil, cylinder oil, and other lubricating oils and organic solvents such as acetone, toluene, LPG and other gases including oxygen, acetylene etc. (hereinafter collectively referred to as "flammable and combustible materials" in this Section).

In addition, the Contractor shall:

(1) Appoint a person who is appropriately qualified, skilled and experienced in handling flammable and combustible materials, to be responsible for the storage and handling flammable and combustible materials and notify the name of such person to the Engineer.

(2) Store flammable and combustible materials in a purpose-built building or compound, fit for the intended purpose, well ventilated and secure, and protecting the stored materials from direct sunlight and extreme heat.

(3) Take measures to prohibit entry to unauthorised personnel and display signage prohibiting the use of flame.

(4) Determine handling methods of flammable and combustible materials, which shall be notified to the Engineer, and ensure Contractor's Personnel are fully aware of the methods.

(5) Provide fire prevention and firefighting facilities appropriate to the stored flammable and combustible materials.

2.8.4 Fire Prevention Measures for Electric and Gas Welding and Cutting

The Contractor shall refer to and comply with JSSS 6.8 [*Electric and Gas Welding and Cutting*] for the fire prevention requirements for electric and gas welding and cutting works.

2.9 PPE AND FIRST AID

2.9.1 PPE

(1) General

(a) Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the Contractor shall provide all necessary and required PPE free of charge, to all Contractor's Personnel, ensure that this is used properly, kept in good condition and replaced in the case of being worn-out, lost or damaged;

(b) PPE shall comply with the requirements of this Section;

(c) The Contractor shall ensure as a minimum and mandatory requirement, that all Contractor's Personnel are provided with the following PPE and the Contractor shall make sure that all Contractor's Personnel wear or use such PPE as appropriate whenever they are on the Site:

(i) Head Protection; and

(ii) Protective Footwear.

(d) The following additional PPE shall be provided whenever required by the working environment:

(i) Eye and Face Protection;

(ii) Ear Protection;

(iii) Respiratory Protection;

(iv) PPE for PFRS and PFAS (Safety Harnesses, Safety Belts and the like);

(v) Gloves; and

(vi) Body Protection.

(e) The particular requirements for PPE are not repeated in each Section of JSSS but appropriate PPE must always be provided by the Contractor; and

(f) PPE described in JSSS 2.9.1 (4) to (11) are examples only and not exhaustive, and the Contractor shall provide further PPE at his cost to the Contractor's Personnel when and where any work requires specific PPE.

(2) Additional Inspection, Testing and Maintenance

Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] and unless otherwise required by the manufacturer or approved by the Engineer:

(a) Frequently used PPE shall be inspected, tested and maintained at least once a month; and

(b) Occasionally used PPE shall be inspected before every use and tested and maintained at least once every three (3) months.

The HSO shall also conduct regular checks to ascertain any requirements for the following:

(a) Inventory and reorder supplies;

(b) Expedite any outstanding manufacturer's response on repair or maintenance issues; and

(c) Schedule of training and retraining.

(3) PPE Signage Requirements

(a) The Contractor shall display signage at specific places at the Site where the wearing of PPE is mandatory;

(b) Such signage shall include for example:

"Head Protection Must be Worn"

"Eye* Protection Must be Worn"

(* face, ear or other)

(4) Head Protection

Head protection shall protect workers' heads and necks against injury from falling or flying objects, risk of head bumping, hair getting tangled in machinery, chemical drips or splash, climate or temperature, reduce the impact from tripping or falling and protect against electric shocks.

Head protection shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.1: Applicable Standards for Head Protection

	Standard	Title of Standard
1	JIS T8131	Industrial Safety Helmets
2	ANSI Z89.1	Industrial Head Protection
3	BS EN 397	Industrial Safety Helmets

(5) Protective Footwear

Protective footwear shall protect against foot injury due to crushing by superimposed loads, impact injuries from dropped or Falling Objects, foot injuries from treading on sharp penetrating objects, injuries from electric shock and also shall increase adhesion preventing workers' from slipping and falling.

Protective Footwear shall have a variety of sole patterns and materials to help prevent slips in different conditions, including oil or chemical-resistant soles. It can also be anti-static, electrically insulating or thermally insulating, appropriate footwear shall be selected for the risks identified.

Protective footwear shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.2: Applicable Standards for Protective Footwear

	Standard	Title of Standard
1	JIS T8101	Protective footwear
2	ASTM F2413	Standard Specification for Performance Requirements for Protective (Safety) Toe Cap Footwear
3	BS EN ISO 20346	Personal protective equipment – Protective footwear
	BS EN ISO 20349	Personal protective equipment. Footwear protecting

		against risks in foundries and welding

(6) Eye and Face Protection

Eye and face protection shall protect workers' eyes and face from harmful materials (for example dust, chemicals, liquid splash, flying objects, molten metal, gas and steam, extreme light, flashes and hazardous rays, dirt and debris, etc.).

Eye and face protection can include safety spectacles, goggles, face masks, face shields, visors and the like. Selected protection shall have the right combination of /impact/dust/splash/molten metal eye and face protection for the task and shall be selected for the risks identified.

Eye and face protection shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.3: Applicable Standards for Eye and Face Protection

	Standard	Title of Standard
1	JIS T 8141 JIS T 8142	Personal eye protectors for optical radiations Personal face protectors for welding
2	ANSI Z87.1	American National Standard for Occupational and Educational Personal Eye and Face Protection Devices
3	BS EN 166 BS EN ISO 4007	Personal eye protection. Specifications Personal protective equipment. Eye and face protection. Vocabulary

(7) Ear Protection

Ear protection shall protect workers' hearing against injury from continuous, loud or Intense Noise by providing soundproofing.

The Contractor shall ensure that workers are still able to receive and immediately react to oral instructions and danger warnings when wearing ear protection.

Ear protection shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.4: Applicable Standards for Ear Protection

	Standard	Title of Standard
1	JIS T 8161	Ear protectors
2	ANSI/ASA S12.6	Methods for Measuring the Real-Ear Attenuation of Hearing Protectors
3	BS EN ISO 4869-1 BS EN ISO 4869-2	Acoustics. Hearing protectors. Subjective method for the measurement of sound attenuation Acoustics. Hearing protectors. Estimation of effective A-weighted sound pressure levels when hearing protectors are worn

	BS EN ISO 4869-3	Acoustics. Hearing protectors. Measurement of insertion loss of ear-muff type protectors using an acoustic test fixture
	BS EN ISO 4869-4	Acoustics. Hearing protectors. Measurement of effective sound pressure levels for level-dependent sound-restoration ear muffs

(8) Respiratory Protection Equipment (RPE)

RPE shall protect workers' airways, lungs and related bodily systems against damage and injury from Harmful Substances or from oxygen-deficient atmospheres when other controls are either not possible or insufficient on their own.

RPE shall be selected with due consideration of:

(a) the Hazardous Substance(s) and the concentration in the air (exposure);

(b) the form of the substance in the air (e.g. gas, particle, vapour);

(c) the type of work being carried out; and

(d) the specific wearer requirements, such as other PPE or a need for spectacles.

RPE shall be:

(a) Correct for the Hazardous Substance such that it reduces exposure to the level required to protect the wearer's health; and

(b) Correct for the wearer, task and environment, such that the wearer can work freely and without additional risks due to the RPE.

As for details, refer to HSE publication HSG53 (Fourth edition, published 2013).

RPE shall fit properly and filters shall be of the correct type as each filter is effective for only a limited range of substances. Filters have only a limited life and shall be changed regularly to maintain performance.

When replacing parts such as filters, use only manufacturers original parts, ensure that the correct type is selected and fit in accordance with the manufacturer's instructions.

Where there is a shortage of oxygen or any danger of losing consciousness due to exposure to high levels of harmful fumes, the Contractor shall only use breathing apparatus, never a filtering cartridge.

RPE shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.5: Applicable Standards for RPE

	Standard	Title of Standard
1	JIS T 8151 JIS T 8157	Particulate respirator Powered air purifying respirator
2	BS EN 149: 2001+A1: 2009 BS EN 14593-1: 2018	Respiratory protective devices. Filtering half masks to protect against particles. Respiratory protective devices. Compressed air line breathing devices with demand valve. Devices with a full-face mask.

コメントの追加 [SS20]: No. 44
JICA requested to add the following sentence because HSG53 contains many other stipulations.

As for details, refer to HSE publication HSG53 (Fourth edition, published 2013)

コメントの追加 [SS21]: These are placed on left arrangement from center.

3	ANSI Z88.2-2015	Practices for Respiratory Protection

(9) Safety Harnesses and Safety Belts

PPE for PFRS shall prevent the risk of workers falling from a height or sliding down slopes.

PPE for PFAS shall arrest a worker in a fall from a height or sliding down slopes.

For further requirements on PPE for PFRS and PFAS, refer to JSSS 2.5.13 [*PPE for Fall Prevention]*.

PPE for PFRS and PFAS shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.6: Applicable Standards for PPE for PFRS and PFAS

	Standard	Title of Standard
1	JIS T8165	Personal fall-arrest systems
2	ANSI Z359.0 to Z359.16	ANSI/ASSE Z359 Fall Protection and Arrest Standards Package
3	BS EN 361	Personal protective equipment against falls from a height. Full body harnesses

(10) Gloves

Gloves shall protect workers' hands from electric shocks, sparks during welding and fusing work, molten metal, heated metal, etc., and shall reduce the vibrations transmitted to workers' hands by tools, machines, etc.

Gloves shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.7: Applicable Standards for Gloves

	Standard	Title of Standard
1	JIS T 8113 JIS T 8114	Protective Leather Gloves for Welders Vibration isolation gloves
2	ASTM D120 ANSI S2.73	Standard Specification for Rubber Insulating Gloves Mechanical vibration and shock – Hand-arm vibration
3	BS EN 60903 BS EN 12477	Live working. Gloves of insulating material Protective gloves for welders

(11) Body Protection

If the HSO considers necessary, Contractor's Personnel shall be supplied with and shall wear suitable body protection appropriate for the working environment.

Risks such as from chemical or metal splash, spray from pressure leaks or spray guns, contaminated dust, impact or penetration, entanglement of own clothing, hot and extremely cold work; and the like shall be considered and avoided through the provision

where necessary of special protective clothing. This may include for example flame-retardant, anti-static, chain mail, chemically impermeable, and high-visibility clothing and the like.

Body Protection shall be selected and provided for the risks to be identified.

Body Protection shall be kept reasonably clean and shall be replaced when worn out or damaged.

2.9.2 First Aid

(1) General

The Contractor shall ensure that trained personal and adequate first aid equipment and supplies shall be readily available at the Site. First aid kits shall be stored at selected locations on the Site where they are most likely to be needed; they must be accessible with the minimum of delay.

(2) Training

A representative number of Contractor's Personnel selected by the HSO shall be trained in first aid (including CPR) to a minimum standard of that recommended by the International Federation of Red Cross and Red Crescent Societies standard course or equivalent.

(3) First Aid Kits

(a) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for first aid complying with OSHA 1910 Subpart K [Medical and First Aid];

(b) First Aid kits shall comply with ANSI Z308.1 and unless otherwise specified in the Particular Safety Specification, Class A first aid kits shall be provided at the working area(s) on Site and one (1) Class B safety kit shall be provide at the sick bay;

(c) All persons working at the site need to be aware of their purpose and location. Adequate signage shall be provided at the Site to show the location of the first aid kit(s);

(d) Each first aid kit shall contain the specified items and quantities listed in ANSI Z308 as follows:

(i) Adhesive Bandage;

(ii) Adhesive Tape;

(iii) Antibiotic Application;

(iv) Antiseptic;

(v) Breathing Barrier;

(vi) Burn Dressing (gel soaked);

(vii) Burn Treatment;

(viii) Cold Pack;

(ix) Eye Covering, with means of attachment;

(x) Eye/Skin Wash;

(xi) First Aid Guide;

(xii) Hand Sanitiser;

(xiii) Medical Exam Gloves;

(xiv) Roller Bandage;

(xv) Scissors;

(xvi) Splint;

(xvii) Sterile pad;

(xviii) Tourniquet;

(xix) Trauma pad; and

(xx) Triangular Bandage.

(e) Each first aid kit shall contain any additional items and quantities that may be necessary according to the requirements and location of the Works;

(f) The Contractor shall ensure that the following additional items are provided with each first aid kit:

(i) A list of emergency phone numbers;

(ii) Flashlight and extra batteries; and

(iii) Bottled drinking water.

(g) To prevent disease transmission when giving first aid, first aid kits shall contain PPE such as disposable gloves, CPR breathing barriers, eye protection and like supplies;

(h) First aid kits shall be inspected at least once a month;

The HSO shall also conduct regular checks to ascertain any requirements for the following:

(i) Inventory and reorder supplies;

(ii) Expedite any outstanding manufacturer's response on repair or maintenance issues; and

(iii) Schedule of training and retraining.

(4) Automated External Defibrillator – AED.

(a) Unless otherwise specified in the Particular Safety Specification, and amongst any other first aid equipment to be provided by the Contractor, the Contractor shall provide at least one (1) AED at the Site;

(b) The AED shall be stored at a selected location on the Site where it is most likely to be needed and it must be accessible with the minimum of delay;

(c) All personnel at the site shall be kept informed of the purpose and location and the Contractor shall train a sufficient number of personnel in its use;

(d) Adequate signage shall be provided at the Site to show the location of the AED together with instructions for its use;

(e) The AED shall be regularly inspected in accordance with the manufacturer's instructions and as follows:

(i) Visually inspect looking for dirt, damage, or contamination;

(ii) Inspect electrodes ensuring that they are unexpired and in their original, sealed packages, two sets shall be provided;

(iii) Test primary battery;

(iv) Make sure a backup battery is stored with the AED and test backup battery; and

(v) Keep the AED charged and check it is maintaining a charge.

The HSO shall also conduct regular checks to ascertain any requirements for the following:

(i) Inventory and reorder supplies;

(ii) Follow up with the manufacturer on maintenance issues; and

(iii) Schedule training and retraining.

(f) The AED shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.7: Applicable Standards for AED

	Standard	Title of Standard
1	BS EN 60601-2-4:2011+A1:2019	Medical electrical equipment, Part 2-4: Particular requirements for the safety of cardiac defibrillators

CHAPTER 3: EXISTING UNDERGROUND, CONCEALED AND OVERHEAD SERVICES

3.1 UNDERGROUND AND CONCEALED SERVICES

3.1.1 General

(1) This Section applies where there are existing underground or concealed pipes, cables, wires, ducts and the like within the Site (hereinafter collectively referred to as "Underground or Concealed Services"), which may require locating, preserving, avoiding and protecting, diverting, removing, relocating or replacing by the Contractor. The Employer shall provide, at the request of the Contractor, such reasonable assistance as to allow the Contractor to carry out such work.

(2) If Underground or Concealed Services are the property of a relevant authority and unless otherwise specified in the Particular Safety Specification, the Contractor shall, in accordance with the agreement between the Employer and the owner of Underground or Concealed Services regarding the actual scope of work to be carried out, comply with the official regulations and procedures of the authority.

(3) In the case of Underground or Concealed Services which are the property of a third party, the Contractor shall take the procedure of obtaining permission for the work mentioned in (4) below.

(4) In accordance with the agreement between the Employer and the owner of Underground or Concealed Services regarding the actual scope of work to be carried out, permission for its execution and details of the procedures and requirements (including responsibility for insurance and safety procedures), the Contractor (with reasonable assistance of the Employer) may consult with the owner of Underground or Concealed Services to obtain permission to execute the work following the preparations described in JSSS 3.1.2 [*Preparation and Work Planning*] as well as the requirements of the Contract and the instruction of the Engineer.

(5) In the case of Underground or Concealed Services which are the property of the Employer, the permission mentioned in (4) above shall be deemed to have been provided by the Employer subject to the preparations described in JSSS 3.1.2 [*Preparation and Work Planning*].

3.1.2 Preparation and Work Planning

(1) Unless otherwise specified in the Particular Safety Specification, the Contractor shall make the following preparations prior to commencing any work for locating, protecting, diverting, removing, replacing or the like of any Underground or Concealed Services:

(a) Prepare a Method Statement describing the measures for carrying out the required work and ensuring the safety of all persons engaged thereon;

(b) Prepare an emergency call list and communication procedure;

(c) Obtain particular information from the Employer or relevant authority on the procedures for emergency disconnection/de-energisation of the Underground or Concealed Services in case of an accident;

(d) Provide and use cable avoidance tools or cable locators, trace the position and routes on ground surfaces, walls and floors of all Underground or Concealed Services, mark routes with paint and/or wooden pegs or barriers and clear signage and ensure that no unauthorised work take place within the area;

(e) Conduct careful exploratory hand excavation to locate the exact position, depth and route of the Underground or Concealed Services and proceed to expose and protect same or prepare for the required work; and

(f) The Method Statement shall be revised based on the information obtained from the above locating and exploratory work.

(2) In case Underground or Concealed Services of which existence are predicted at the Site, but not shown in the Contract, the Contractor shall inform the Engineer of the existence for the Engineer's instruction to the Contractor.

(3) Machine excavation shall not be allowed when there is any risk that Underground or Concealed Services may exist in the location or vicinity of the excavation.

(4) The Contractor shall take all measures necessary to ensure the protection and safety of road traffic, pedestrians, Contractor's Personnel and any other persons affected by or potentially affected by the Works as required by the Contract and also by JSSS including JSSS 2.2 [*Risk Control Around the Site*].

3.1.3 Requirements and Precautions

Unless otherwise specified in the Particular Safety Specification, the Contractor shall:

(1) Protect and secure all Underground or Concealed Services throughout the execution of the Works and avoid all damage to such services and adjacent areas, particularly when backfilling, compacting and reinstating surfaces.

(2) Take care not to damage the Underground or Concealed Services when using power tools for example asphalt cutting machine to break through paved surfaces above Underground or Concealed Services.

(3) Take care to safely expose, support and protect any drains, other services (new or existing) which follow or cross the route of Underground or Concealed Services.

(4) Reinstate surface paving with material and methods specified, without leaving any difference in level with surrounding pavement and replace all surface markings and signage.

(5) Adequately test all Underground or Concealed Services after completing any diversion, replacement or alteration work, to ensure the safety and integrity and to avoid any future risk of injury, leakage or pollution.

(6) Implement strict safety and fire prevention measures throughout the work including prohibiting the use of equipment that can create any damage or fire hazard (such as welding, cutting and electrical equipment) in the vicinity of any Underground or Concealed Services conveying flammable, combustible or explosive liquids or gases.

(7) Be aware of and avoid electric shock when excavating for or near any cables, wires or cable ducts, ensure the safety of all Contractor's Personnel and ensure the provision and use of PPE.

(8) Be aware of and avoid subsidence or collapse of excavations due to Contractor's Equipment, vehicles, other equipment or other activities being too close to any excavation.

(9) Provide adequate temporary barriers, signage, markings and lighting to all areas where work on or adjacent to Underground or Concealed Services is taking place.

(10) Assign a full time Spotter in accordance with the requirements of JSSS 2.4 [*Spotters*] when work in progress poses any risk to the Underground or Concealed Services, Contractor's Personnel or the Works.

(11) Provide electrical cable marker tiles over all buried wires, cables and cable ducts to warn and protect against the risk of future mechanical damage to same.

(12) Provide permanent markers or signage at the surface to warn of the presence, route and any danger of any Underground or Concealed Services.

(13) Prepare as-built drawings of Underground or Concealed Services after completion of the associated work showing accurate positions, depth, sizes, routes and details and submit to the Engineer.

3.1.4 Information to Contractor's Personnel

Prior to the start of work to or in the vicinity of Underground or Concealed Services, the Contractor shall instruct relevant Contractor's Personnel of the following:

(1) Location of live cables and equipment.

(2) Risk of electric shock from live cables or equipment.

(3) Separation distances from live cables and equipment.

(4) Work procedure.

(5) Preventive measures against electric shock.

(6) PPE to be used.

(7) Electric shock treatment in accordance with JSSS 3.1.5 [*Electric Shock Treatment*].

(8) Response in the event of an accident in accordance with JSSS 1.24 [*Accident Response Plan*] and JSSS 1.25 [*Measures at the Time Accidents Occur*].

(9) Appropriate procedures in the case of accidents arising from contact with or damage to any other services.

3.1.5 Electrical Shock Treatment

The following measures shall be taken in the event of an electric shock accident.

(1) Prohibit workers from touching the chassis or body of any Contractor's Equipment or materials that have become electrified by any live circuit and keep all Contractor's Personnel well away from such equipment, materials and the working area.

(2) When the unit of Contractor's Equipment which is in contact with or in close proximity to a live circuit does not get an electrical shock, the operator shall immediately move the equipment to an adjacent safe location.

(3) When it is not possible to move the Contractor's Equipment away, the operator shall remain in the cabin until the affected live circuits are de-energised.

(4) Prevent secondary electric shock accident by permitting only those who have received training in electrical rescue to rescue the casualties of an electric shock accident.

(5) Immediately perform primary lifesaving measures such as CPR, if necessary use an Automated External Defibrillator (AED) and call for emergency medical support.

(6) Report to the Engineer in accordance with JSSS 1.25 [*Measures at the Time Accidents Occur*] and where applicable to the representative of the relevant authority.

3.2 OVERHEAD SERVICES

3.2.1 General

(1) This Section applies where there are exposed or overhead power or communication cables, wires, ducts, pipes and the like within the Site (hereinafter collectively referred to as "Overhead Services"), and which may require preserving, protecting, diverting, removing, relocating or replacing by the Contractor. The Employer shall provide, at the request of the Contractor, such reasonable assistance as to allow the Contractor to carry out such work.

(2) If Overhead Services are the property of a relevant authority and unless otherwise specified in the Particular Safety Specification, the Contractor shall, in accordance with the agreement between the Employer and the owner of Overhead Services regarding the actual scope of work to be carried out, comply with the official regulations and procedures of the relevant authority.

(3) In the case of the Overhead Services which are the property of a third party, the Contractor shall take the procedure for the works mentioned in (4) below.

(4) In accordance with the agreement between the Employer and the owner of Overhead Services regarding the actual scope of work to be carried out, permission for its execution and details of the procedures and requirements (including responsibility for insurance and safety procedures), the Contractor (with reasonable assistance of the Employer and Engineer) may consult with the owner of Overhead Services to obtain a permission of the owner of Overhead Services to execute the works following the preparations described in JSSS 3.2.2 [*Preparation and Work Planning*] as well as the requirements of the Contract and the instructions of the Engineer.

(5) In the case of Overhead Services which are the property of the Employer, the permission mentioned in (4) above shall be deemed to have been provided by the Employer subject to the preparations described in JSSS 3.2.2 [*Preparation and Work Planning*].

3.2.2 Preparation and Work Planning

(1) Unless otherwise specified in the Particular Safety Specification, the Contractor shall make the following preparations prior to commencing any work for protecting, diverting, removing, replacing or the like of any Overhead Services:

(a) Prepare a detailed Method Statement describing the measures for carrying out the required work and ensuring the safety of all persons engaged thereon;

(b) Prepare an emergency call list and communication procedure; and

(c) Obtain particular information from the Employer or relevant authority on the procedures for emergency de-energisation of the Overhead Services in case of an accident.

3.2.3 Requirements and Precautions

Unless otherwise specified in the Particular Safety Specification, the Contractor shall:

(1) Protect and secure all Overhead Services throughout the execution of the Works.

(2) Adequately test all Overhead Services after completing any diversion, replacement or alteration work, to ensure the safety and integrity and to avoid any future risk of injury, leakage or pollution.

(3) Be aware of and avoid electric shock when working near any cables or wires, ensure the safety of all Contractor's Personnel and ensure the provision and use of PPE.

(4) Be aware of and avoid subsidence or collapse of support structures of Overhead Services due to excavations being too close.

(5) Provide adequate temporary barriers, signage, markings and lighting to all areas where work on or adjacent to Overhead Services is taking place.

(6) Provide insulating protective pipe or casings to the Overhead Services.

(7) Create safe zones free from danger arising from the use Contractor's Equipment by demarcating the route and turning ranges and providing adequate signage and barriers.

(8) Prevent Contractor's Equipment, wire ropes or chains from entering the safe zones and limit the moving range of crane jibs and other high equipment.

(9) Assign a full time Spotter in accordance with the requirements of JSSS 2.4 [*Spotters*] when work in progress poses any risk of close proximity or contact with Overhead Services, Contractor's Personnel or the Works.

(10) Maintain a safe separation distance between any charged electrical circuit and Contractor's Personnel, Contractor's Equipment, Scaffolding and any other Temporary Works, wire rope, tools and materials. The separation distance shall be the maximum relevant value shown Table 3.2.1 [*Safe Separation Distances*] any values that may be prescribed by the Laws of the Country or any values that may be prescribed by the regulations of the relevant authority:

Table 3.2.1: Safe Separation Distances

	Circuit Voltage	Separation Distance
1	Extra-high Voltage (7000V and above)	2m (20cm to be added for every 10,000V increase and fraction from 60,000V)
2	High Voltage (600V up to 7000V)	1.2m
3	Low Voltage (Less than 600V)	1m

3.2.4 Information to Contractor's Personnel

Prior to the start of work to or in the vicinity of Overhead Services, the Contractor shall instruct relevant Contractor's Personnel of the same items as listed in JSSS 3.1.4 [*Information to Contractor's Personnel*]

3.2.5 Electrical Shock Treatment

The Contractor shall take the measures prescribed in JSSS 3.1.5 [*Electrical Shock Treatment*].

CHAPTER 4: CONTRACTOR'S EQUIPMENT

4.1 GENERAL REQUIREMENTS

4.1.1 Scope

(1) This Chapter specifies the safety requirements for Contractor's Equipment which shall include mobile equipment, static equipment, small equipment, tools and electric power equipment as further described in the following Clauses.

(2) The Contractor shall ensure the safety of all Contractor's Personnel, Employer's Personnel and any other persons that are on the Site, adjacent to the Site and other places where they may be affected by Contractor's Equipment in operation, standby or storage or when such equipment is being maintained or transported.

(3) For additional requirements for hoisting, rigging and cranes, refer to JSSS 5 [*Hoisting and Rigging*].

(4) Any reference to "operator" in this Chapter and elsewhere in JSSS shall be deemed to include "driver" also.

(5) Mobile equipment including wheeled or tracked, self-propelled construction machinery such as:

(a) Surface excavation and spoil movement equipment for bulk excavation, grading and levelling, such as bulldozers, graders and tractor excavators;

(b) Excavators such as backhoes, face shovels, power shovels;

(c) Loaders such as payloaders and face shovels;

(d) Dump trucks for removal or importation of spoil;

(e) Specialist foundation equipment such as pile driving and boring equipment;

(f) Compaction and surface treatment equipment such as smooth or sheepsfoot rollers, pneumatic and vibration rollers, asphalt finishers;

(g) Mobile cranes;

(h) Piling equipment;

(i) Concreting equipment such as ready-mixed concrete trucks and pump trucks;

(j) Demolition equipment such as breakers, concrete crushers and demolition grippers;

(k) Transportation Equipment, such as cars and buses for Contractor's Personnel and trucks and trailers for transporting Goods to, around and from the Site; and

(l) Workboat for Diving Works.

(6) Static equipment includes powered stationary equipment such as:

(a) Stone crushing plants and screening equipment;

(b) Concrete and asphalt concrete batching plants;

(c) Tower cranes, derrick cranes;

(d) Elevators;

(e) Material conveyors;

(f) Air compressors;

(g) Engine Generators, submersible pumps and engine pumps; and

(h) Reinforcement, cutting and bending machines.

(7) Small equipment and tools such as:

(a) Hand steered vibrating rollers;

(b) Plate compactors and vibratory rammers;

(c) Portable conveyors;

(d) Pipe bending machines;

(e) Drills, hammers, breakers, compactors and compressors;

(f) Wood processing equipment;

(g) Independent concrete mixers;

(h) Air extract or blowing equipment for improving the working area environment;

(i) Jack hammers, drills;

(j) Chain saws;

(k) Hand operated equipment such as jacks, winches, lever hoists; and

(l) Hand tools such as wrenches, chisels, hand saw, picks, hammers.

4.1.2 Compliance Standards

(1) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], the Contractor shall comply with the requirements of this Chapter, read jointly with and including the Provision and Use of Work Equipment Regulations 1998 (PUWER), HSE Guidance in UK.

(2) In accordance with these regulations, together with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the Contractor shall ensure that all Contractor's Equipment provided for use upon the Works is:

(a) Suitable and fit for the purpose for which it is intended;

(b) Safe for use, maintained in a safe condition and inspected to ensure it is correctly installed and used and does not subsequently deteriorate;

(c) Used only by people who have received adequate information, instruction and training;

(d) Accompanied by suitable health and safety measures, such as protective devices and controls. These shall include emergency stop devices, adequate means of isolation from sources of energy, clearly visible markings and warning devices; and

(e) Used for the designed and intended purpose.

4.1.3 Manufacturer's Documentation

The Contractor shall obtain a copy of the following official Manufacturer's documentation for all units of Contractor's Equipment:

(1) Safety instructions and recommendations.

(2) Operation, maintenance and repair manual.

The Contractor shall inform all relevant Contractor's Personnel of the content of the same, provide further safety training as necessary and ensure full compliance by all relevant Contractor's Personnel with such instructions and recommendations to assist in enforcing the safe use of Contractor's Equipment.

4.1.4 Instruction for Contractor's Personnel

Further to the requirements of JSSS 1.7 [*Contractor's Safety Plans*], JSSS 1.9 [*Contractor's*

Method Statements] and JSSS 1.15 [*Contractor's Safety Management Activities*], the Contractor shall include details of the following in the Method Statement and Safety Plan for works involving the use of Contractor's Equipment and shall fully inform all relevant Contractor's Personnel associated therewith of all requirements before the commencement of any such operations, such as:

(1) Scope of work, locations and areas, work methods, dimensions, levels and quantities to be achieved.

(2) Types, capacities and numbers of units.

(3) Workplaces, area limits and operational routes, restricted areas, locations of caution signs and fences.

(4) Preservation of safe access, walkways and footpaths around the working areas and transportation areas.

(5) Identities and roles of and location(s) for Spotters and the communication and signalling requirements, including equipment to be used.

(6) Working conditions and required mitigation measures for workers and any other persons against vibration, noise, dust and the like.

(7) Safety measures in the working area, any nearby areas for storage of Dangerous Goods or Hazardous Substances, Hazardous Areas, Operational Areas or areas where Dangerous Work is taking place.

(8) Potential danger to any persons who may be affected by the use of Contractor's Equipment and the required measures to avoid any accident or injury.

(9) Any potential hazards in the use of Contractor's Equipment including those which may create a risk of falling or overturning.

(10) Restrictions to the movement and operation of Contractor's Equipment such as existing structures, foundations, surfaces, underground or overhead services and Dangerous Goods storage.

(11) Measures to be taken in case of breakdown, defect or fault in Contractor's Equipment including location of areas for inspection and maintenance.

(12) Name of the authorised operator for each unit of Contractor's Equipment when authorised operator is necessary to be assigned.

(13) Name and contact of the HSO to inform when there are any requirements for inspection, maintenance and repair of Contractor's Equipment.

4.1.5 Safety Training

(1) The Contractor shall provide the relevant Contractor's Personnel with health and safety training in accordance with JSSS 1.19 [*Safety Training Generally*] taking account of the characteristics of the particular types of Contractor's Equipment and including:

(a) Functions, performance, operation methods, inspection items, inspection method of safety and emergency alarm devices;

(b) Operation procedure, signal and communication method at starting time of the operation, and daily inspection;

(c) Lockout and tagout procedures for shutting down operation, turning off the power, locking the starter and necessary measures for the time of cleaning and inspection of the Contractor's Equipment;

(d) Stop of the operation of the Contractor's Equipment when an abnormality occurs and report to the person in charge;

(e) Prohibition of removal or isolation of safety devices; and

(f) Risks during operation of the Contractor's Equipment.

(2) Particular safety training for transportation equipment operators shall be for the purpose of preventing of traffic accidents on and off the Site and shall include:

(a) Driving rules in general;

(b) Compliance with speed limits, signs, alcohol use, drugs and all other requirements the Laws of the Country;

(c) Driving methods to avoid contact and collision with other persons, cycles, motorcycles and other vehicles;

(d) Driving methods to properly overtake other vehicles and to be undertaken by others;

(e) Driving methods when encountering holes, bumps or obstacles on the road;

(f) Required inspection and maintenance before starting operation; and

(g) Proper use of vehicles including behaviour and control of passengers, prevention of overcrowding, overloading and unauthorised passengers.

4.1.6 Requirements for Operators

Further to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*], the Contractor shall ensure that operators are appropriately qualified, skilled and experienced in operation of the Contractor's Equipment to which they are assigned and duly certified as such by the HSO.

(1) Operators shall safely and competently operate the Contractor's Equipment.

(2) Operators shall be fully aware of the following:

(a) Work procedures, hazards and operation methods;

(b) The need to stop the operation when any defect or abnormality is detected;

(c) The identity of and location(s) for Spotters and the communication and signalling requirements including equipment to be used; and

(d) The procedures in case of emergency.

(3) Operators shall:

(a) Keep all safety devices including emergency-alarm and stop-devices activated;

(b) Keep their assigned unit clean and carry out regular inspections prescribed by the Contractor before start of operation;

(c) Inform the Contractor's maintenance personnel of any apparent defect or maintenance requirements; and

(d) Not use such Contractor's Equipment until any required repair or maintenance is performed.

4.1.7 Signalling

(1) Signalling between operators and any associated workers shall only be carried out by designated personnel.

(2) Spotters shall be located in a safe place and where they can clearly see and be seen by the operator.

(3) When it is not possible for Spotters to give direct visible and audible signals to the operator, other systems including hand-held radios or videophone must be provided and

used.

4.2 INSPECTION, MAINTENANCE AND REPAIR

4.2.1 Requirements Generally

(1) Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the HSO shall ensure that all Contractor's Equipment is inspected, fully maintained and operational when it is mobilised to the Site. Thereafter all Contractor's Equipment shall be inspected, maintained and repaired before the commencement of the first and of all subsequent days of operation.

(2) Inspections shall include all items necessary to ensure the safe performance of the Contractor's Equipment including the following examples and any further requirements due to the characteristics, capability and condition of the Contractor's Equipment and in compliance with the manufacturer's official operation, maintenance and repair manual.

(3) When mobilising Contractor's Equipment to the Site and before commencement of operation, the Contractor shall:

(a) Inspect all units of Contractor's Equipment to ensure that:

(i) all components are installed and functioning; and

(ii) adequate covers and safety guards (to prevent contact with moving parts) are provided and securely fixed.

(b) Ensure as a minimum that the daily and periodical check items have already been inspected and recorded;

(c) Ensure that all inspection and maintenance records are available for inspection by the Engineer if and when required in compliance with JSSS; and

(d) If any inspection and maintenance records are incomplete or not available, the Contractor shall carry out inspections and maintenance to ensure that a full and acceptable record is available for all units of Contractor's Equipment.

In relation with the above, it should be noted that Contractor's Equipment shall be in a working and safe condition and fully compliant with JSSS when it is mobilised to the Site. The Engineer may refuse to accept delivery to the Site any Contractor's Equipment which does not meet the requirements stipulated in JSSS.

(4) The Contractor shall undertake the following daily inspection items, (or at intervals required by the manufacturer's official operation, maintenance and repair manual), carry out any necessary maintenance and repair, and when necessary obtain re-certification of the HSO before any further operation of the Contractor's Equipment is permitted:

(a) Operating condition of engine, gearbox(s), drive shafts, pulleys and main components, emergency stop and safety devices, any defects or abnormalities in covers, doors and enclosures;

(b) Abnormal sounds, vibrations or smell;

(c) Leaks, levels and condition of lubricants, coolant, hydraulic fluid levels, and the like;

(d) Lights and indicators;

(e) Brakes, clutches, steering and operating devices and working devices;

(f) Cables, slings, ropes and chains;

(g) Protective covers are adequately provided over all rotating or moving parts;

(h) Attachments and tools such as buckets, grabs and the like;

(i) Cleanliness of each unit or item of Contractor's Equipment;

(j) Cleanliness of each working area and removal of obstructions;

(k) Availability of emergency kits such as warning flares and triangles, fire extinguisher, first aid kit and the like, as required by the Laws of the Country with the testing and expiration date clearly indicated; and

(l) Any additional inspection items stipulated in the manufacturer's official operation, maintenance and repair manual.

(5) The Contractor shall undertake the following periodic inspection items, (at intervals required by the manufacturer's official operation, maintenance and repair manual), carry out any necessary maintenance and repair, and when necessary obtain re-certification of the HSO before any further operation of the Contractor's Equipment is permitted:

(a) Engine compression pressure, valve clearance and other relevant parts of prime energy unit;

(b) Gearbox, clutch, transmission, propeller shaft, differential and other parts of power transmission devices;

(c) Drive wheels, idling wheels, vertical trunk rollers, belts, tires, wheel bearings and other parts of traveling devices;

(d) Springs, shock absorbers and other parts of suspension devices;

(e) Left and right rotation angle of steering wheel, knuckle, rod, arm and other parts of control devices;

(f) Brake capacity, brake drum, brake shoe and other parts of braking systems;

(g) Blades, booms, link mechanisms, buckets, wire ropes and other parts of work equipment;

(h) Hydraulic pump, hydraulic motor, cylinder, safety valve and other parts of hydraulic equipment;

(i) Voltage, amperage and relevant performance and components of electrical systems;

(j) Body, operating devices, head guards, back stoppers, access doors, protective covers, ladders and steps, locking devices, warning alarm devices, direction indicators, tyre air pressures and lightning devices; and

(k) Any additional inspection items stipulated in the manufacturer's official operation, maintenance and repair manual.

(6) Operation of any unit of Contractor's Equipment shall not be allowed to commence until the HSO has certified that it is safe to do so.

(7) The Contractor shall prepare standard checklists for all inspections and the HSO shall ensure that these are complied with, completed and signed and kept as a record in accordance with JSSS 1.32 [*Health and Safety Records*].

4.2.2 Defects and Repair During Operation

(1) If an operator notices any defect or abnormality in the Contractor's Equipment during operation (such as abnormal noise, temperature, smell, etc.) the operator shall stop the operation immediately.

(2) Necessary repair shall be provided by qualified mechanics, electricians or engineers.

(3) The HSO shall ensure that no further operation shall resume unless the above has been complied with and the Contractor's Equipment has been re-inspected by him and certified in accordance with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety*

Equipment and PPE].

4.3 SAFETY REQUIREMENTS

4.3.1 General Safety Measures

In addition to other safety and health requirements of JSSS, the Contractor shall:

(1) Ensure that there is sufficient lighting to perform all work safely and provide artificial lighting where necessary.

(2) Ensure that Contractor's Equipment is equipped with suitable protective safety devices such as covers, screens, guards, contact prevention devices, auto-stop devices, enclosures, barriers and the like as necessary to prevent injury to personnel from equipment or parts of equipment, where:

(a) There may be any risk of persons being hit by, caught or injured or entangled in any ropes, cables, sheaves, moving or rotating parts; and

(b) There may be any risk of persons being hit by flying debris, offcuts, or the like produced by the equipment.

(3) Ensure that Contractor's Equipment is equipped with suitable ladders and steps for access to the operating cab and also to all other levels and components to permit inspection, assembly, maintenance and repair of the equipment. When any Contractor's Personnel need to work at a height of 2 m or more, the Contractor shall take suitable measures in accordance with JSSS 2.5 [*Fall Prevention*], including the provision and use by such Contractor's Personnel of guide ropes and PFAS.

(4) Prohibit personnel other than operators, workers and other authorised personnel from entering the place where Contractor's Equipment is in use for the Works.

(5) Ensure that each unit of Contractor's Equipment is provided with appropriate numbers and types of fire extinguishing equipment (where such equipment is necessary) and ensure that all operators and other Contractor's Personnel are trained in the use of such equipment and in fire safety procedures.

(6) Ensure that each working area where Contractor's Equipment is in use, is provided with appropriate numbers and types of first aid equipment and such other facilities that are necessary to ensure safety and treat accidents and ensure that all operators and other Contractor's Personnel are trained in the use of such equipment and first aid procedures.

(7) Post a label clearly showing the name of the operator on each unit of Contractor's Equipment together with the name and contact number of the HSO or a person in charge who shall be contacted in the event of breakdown or fault.

(8) Ensure that only the authorised operating, inspection and maintenance personnel access the mechanical, electrical and other components and systems of the Contractor's Equipment and prohibit all other persons from such access.

(9) Ensure that any inspection and maintenance covers, safety guards to prevent contact with moving parts and the like are not disabled, tampered with or removed except for repair, maintenance or any other justifiable reason.

(10) Ensure that installation, assembly, testing commissioning, operation and dismantling of all Contractor's Equipment is carried out under the direction of an Operation Leader, appropriately qualified, skilled and experienced in such activities for the particular type and capacity of equipment and in accordance with the manufacturer's operation, maintenance and repair manual.

4.3.2 Safety Measures During Cleaning, Inspection and Maintenance

The Contractor shall take the following measures for safety of Contractor's Personnel during cleaning, inspection and maintenance. Until such measures are taken, the Contractor shall

prohibit any cleaning, inspection or maintenance personnel or other workers from entering the areas:

(1) Put Contractor's Equipment, wherever possible on a level surface. Where such is not possible, ensure that wheels are securely chocked to prevent any movement of equipment.

(2) Provide safety blocks or supports under cargo bed of vehicles to prevent them descending unexpectedly.

(3) Lower attachments (buckets and blades etc.) to the ground during any inspection and maintenance. Where unavoidable ensure that attachments are securely supported to prevent any fall or downward movement.

(4) Stop and isolate the functions completely, establish and implement lockout and tagout procedures to prevent accidents during inspection and maintenance. The lockout and tagout system shall fully isolate the starting system.

(5) Post warning signs to prohibit start-up or use of any Contractor's Equipment.

(6) Assign a Spotter.

(7) Ensure that only authorised personnel have access to the cleaning, inspection and maintenance area.

4.3.3 Safety Measures During Operation

(1) Unless otherwise specifically permitted by the HSO, all work involving the use of Contractor's Equipment shall be designated as Dangerous Work and the Contractor shall enclose the working area with temporary fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry*].

(2) The Contractor shall also ensure that:

(a) All operators are able to clearly see and communicate effectively with Spotters and other relevant persons;

(b) No Contractor's Equipment is operating beyond the capacity or operational limits officially prescribed by the equipment manufacturer;

(c) The surfaces upon which the Contractor's Equipment is working, and any adjacent surfaces and areas over which access is required, are sound, safe and suitable to support the equipment and the Contractor shall provide any temporary foundations, hardstanding or other surfaces, sleepers or steel plates as are necessary to ensure safety and stability of the equipment at all times;

(d) Spotters are always be provided to enable precise movement and positioning of Contractor's Equipment, particularly when reversing, loading and unloading, in dangerous areas or when the operator's view is not clear and at intersections with public roads;

(e) Where there is any risk of turnover, slippage, collapse or fall, Contractor's Equipment is equipped with seatbelts or safety harnesses and that such seatbelts and harnesses are used;

(f) Where there is any risk of turnover, slippage, collapse or fall, Contractor's Equipment is equipped with a "Roll-Over Protective Structure" (ROPS);

(g) Where there is any risk of injury to operators due to Falling Objects Contractor's Equipment is equipped with a "Falling Object Protective Structure" (FOPS);

(h) Operators are aware that they shall pay careful and constant attention to the position of any workers near to the operating area and particularly when mobile equipment is reversing;

(i) Operators of excavating equipment are aware that excavator buckets shall never pass over the operator's seat of any other Contractor's Equipment;

(j) Workers shall not enter under a bucket which is loading material and shall keep away from dump trucks when loading or unloading materials; and

(k) No person shall ride on trucks, trailers or cargo bed other than cabin of vehicles unless permitted by the Laws of the Country.

4.3.4 Safety Measures When Mobile Equipment Is Not In Use

(1) When mobile equipment is not in use, the Contractor shall ensure that operators:

(a) Park on surfaces which are level, sound, safe and suitable to support the equipment;

(b) Securely chock all wheels to prevent any movement;

(c) Lower attachments (buckets and blades etc.) to the ground;

(d) Stop and isolate the functions completely, fully engage brakes and lock the brake pedal; and

(e) Lock the equipment and store the starter key in the designated place.

(2) The Contractor shall prohibit all persons other than authorised personnel from entering the area where Contractor's Equipment is parked.

4.3.5 Safety Measures During Connecting and Removing of Attachments

The Contractor shall take the following measures when connecting and removing attachments (buckets, blades etc.) to Contractor's Equipment:

(1) Prevent any accident due to movement or fall of attachments by taking safety measures for example, connecting and removing attachments after locating them on stable and sound frames or on the ground.

(2) Prevent accidental movement or operation causing persons to be trapped attachments by taking safety measures for example, parking of the Contractor's Equipment such that it cannot move (as mentioned in JSSS 4.3.4 (1) (a), (b) and (d)) and stop the engine.

4.3.6 Safety Measures During Loading and Transporting of Contractor's Equipment

The Contractor shall:

(1) Select and use trailers with associated ramps, other loading equipment and restraints which are suitable for the particular type, size and weight of the Contractor's Equipment and fit for the purpose for which they are intended.

(2) Select location and areas for loading and unloading which have sufficient space and surfaces which are level, sound, safe and suitable to support all of the equipment.

(3) Securely chock all wheels of trailers to prevent any movement.

(4) Stop and isolate the functions of trailers and load and fully engage brakes.

(5) Ensure trailers are equipped with tie down devices to allow secure fixing of load.

(6) Ensure that the weight and height of the loaded Contractor's Equipment do not exceed actually required or legal limits.

(7) Ensure that all lights, brakes, steering and safety devices are working properly.

(8) Ensure that suitable, clear and legally compliant signage is attached to the trailer visibly indicating the maximum safe loading capacity, height of load, width, speed limits and any other restrictions or required information.

(9) Ensure that trailers are loaded evenly.

(10) Ensure that Contractor's Equipment loaded onto trailers is braked, wedged, securely locked in position and tied to the trailer with adequately sized chains, slings and other fixings and tensioned to prevent any movement during transit.

(11) Place any attachments on trailers and securely tie down.

(12) Inspect the tie-down tensioning, before and at intervals during transportation of Contractor's Equipment to ensure that there is no slackening.

(13) Inspect chains, slings and other fixings for securing transported Contractor's Equipment and if any abnormality is found, replace immediately.

4.3.7 Safety Measures During Loading and Transporting of Goods

The Contractor shall:

(1) When transporting heavy or long Goods on public roads, select roads on which the transportation does not pose danger to other traffic, third parties, structures adjacent to the transportation route, obtain all necessary permission from the relevant authorities including police and road authority before commencement of transportation and comply with all requirements.

(2) When transporting heavy or long material Goods within the Site, select suitable routes where the transportation does not pose danger to existing permanent or temporary buildings or structures or other works and obtain the consent of the HSO before commencement of the transportation and comply with all requirements.

(3) Ensure that Goods are loaded evenly.

(4) Secure all loads with adequate and tensioned slings and cover with protective sheets, to avoid any fall or collapse of the conveyed articles and prevent any risk to workers and third parties.

(5) Inspect slings for securing transported materials and if any abnormality is found, replace immediately.

4.3.8 Temporary Roads in the Site

The Contractor shall:

(1) Take measures to ensure that that Temporary Roads in the Site are of suitable construction, of sufficient width, free from potholes, uneven settlement and collapse.

(2) Provide signs indicating height and weight restrictions, bends, speed limits, intersections, dangerous places and the like (e.g. road shoulders, cliff edges and the like).

(3) Separate roads for vehicles and walkways for workers and provide passing area for vehicles at places where the road is narrow.

(4) In large construction sites, provide exclusive transport roads which are one-way if possible and provide passing areas on narrow roads.

(5) Provide sufficient lighting facilities at necessary places along roads when work operating in night.

4.3.9 Additional Requirements for Static Equipment

(1) The Contractor shall design and construct suitable foundations and support structures for static equipment with paved surfaces, screens, fencing and associated facilities for storage of material and product and for offices, access and the like all of which shall be suitable and fit for the purpose for which they are intended. Unless otherwise stated in the Contract, all such foundations, support structures, paved surfaces, fencing, screens and associated facilities shall be demolished and removed and disposed of safely and in an environmentally acceptable manner by the Contractor on or before completion and taking-over of the Works. All areas shall be backfilled, restored to a safe and suitable

コメントの追加 **[SS22]:** No. 48
JICA inquired if "on or before" means that they can be demolished without waiting till completion and taking over all the Works.
If yes, the sentence of "on or before" will be left as they are.
Please reply to this inquiry.

condition, cleaned and landscaped.

(2) Unless otherwise stated in the Contract, all remaining aggregate, rock, cement, bitumen and the like used by or processed with the static equipment shall be removed and disposed of safely and in an environmentally acceptable manner by the Contractor on completion of use of the static equipment. All areas shall be backfilled, restored to a safe and suitable condition, cleaned and landscaped.

4.3.10 Additional Requirements for Personnel and Goods Elevators and Material Conveyors

(1) General

(a) The requirements for conveyors stipulated in this Clause apply to material conveyors;

(b) The Contractor shall undertake the daily and periodical inspection in addition to the items stipulated in JSSS 4.2 [*Inspection, Maintenance And Repair*], (or at intervals required by the manufacturer's official operation, maintenance and repair manual), carry out any necessary maintenance and repair and when necessary obtain re-certification of the HSO before any further operation of the Contractor's Equipment is permitted; and

(c) The Contractor shall post the maximum load capacity and any restrictions on the use.

(2) Personnel and Goods Elevators

(a) Additional daily inspection items shall include checking for defects or operational faults with the following:

(i) Elevator enclosures, doors, guide-rails and runners;

(ii) Emergency stop and alarm systems;

(iii) Power, lighting and control systems;

(iv) Interphone systems;

(v) Brakes, clutches; and

(vi) Sheaves and pulleys.

(b) Additional periodical inspection items shall include checking for defects or operational faults with the following:

(i) Daily inspection items;

(ii) Wire ropes;

(iii) Winch and its foundation; and

(iv) Supporting structures, guy ropes, fixings and anchors.

(3) Material Conveyors

(a) Additional safety measures:

(i) Conveyor systems shall be equipped with an audible warning signal to be sounded immediately before starting up the conveyor;

(ii) Means for stopping the motor or engine shall be provided at the motor or engine location;

(iii) Emergency stop switches shall be provided and be arranged so that the conveyor cannot be started again until the actuating stop switch has been reset to running or "on" position;

(iv) Where a conveyor passes over working areas, roads and walkways, suitable

guards shall be provided to prevent fall of the materials being conveyed; and

(v) Riding of workers on the moving belts shall be prohibited.

(b) Additional daily inspection items shall include checking for defects or operational faults with the following:

(i) Overrun and reverse run prevention devices;

(ii) Emergency stop switches; and

(iii) Guards.

(c) Additional periodical inspection items, shall include for checking for defects or operational faults with daily inspection items.

4.3.11 Additional Requirements for Small Equipment and Tools

(1) Accessories and attachments shall be the standard types obtained from or recommended by the manufacturer of the equipment to which they are connected.

(2) Any repairs shall be carried out by competent persons approved by the HSO.

(3) All small equipment and tools shall be tested by the HSO as safe for use after any repair or replacement of parts, before such equipment is put back into use.

4.3.12 Additional Requirements for Electric Powered Equipment

(1) Electric powered equipment specified in this Clause shall include portable electric powered mobile equipment or tools and shall form a part of the small equipment and tools listed in JSSS 4.1.1 (7).

(2) The Contractor shall undertake the following additional daily inspection items, (or at intervals required by the manufacturer's official operation, maintenance and repair manual), carry out any necessary maintenance and repair and when necessary obtain re-certification of the HSO before any further operation of the Contractor's Equipment is permitted:

(a) Defects or operational faults with grounding such as disconnection of grounding wire and insecure fixing of grounding electrodes;

(b) Damage to insulation and protective coverings of all wires and cables including flexible cables; and

(c) Damage to plugs, sockets, transformers and all wiring fittings and appliances.

(3) The Contractor shall comply with the following additional safety requirements:

(a) Use waterproof switches and socket outlets with covers, securely fixed and located in accessible and dry places;

(b) Label and paint electrical power and switch boxes with warning signs and coloured hazard markings;

(c) Use rubber cabtyre cables for all electrical power equipment;

(d) Provide grounding to all electrical power supply systems with GFCI or RCD in accordance with JSSS 6.7.3 [*General Safety Requirements*];

(e) Avoid hanging electric cables and wires directly on nails, reinforcement or Scaffolding and the like to prevent damage to the insulation and protective covering;

(f) Turn off the power before repairing, moving or maintaining electric power equipment;

(g) Replace fuses with correct type and rating, prohibit replacing fuses with a higher

rating or with iron or copper wire;

(h) Ensure that fuses are replaced by an authorised person;

(i) Prevent any use of electric power equipment from use in the rain, or when the user is wet, standing in water or is not wearing rubber soled insulated footwear or when the electric power equipment is wet;

(j) When any operational fault is identified immediately turn off the power, unplug and stop using the equipment and advise (or hand to) the HSO;

(k) Ensure that workers using electric power equipment wear appropriate PPE suitable for the electric power equipment in use such as working clothes, protective helmets, safety shoes, eye and face protection, ear protection; and

(l) When electric shock accident occurs, unplug and stop using the equipment and advise (or hand to) the HSO and take measures in accordance with JSSS 1.25 [*Measures at the Time Accidents Occur*].

4.3.13 Additional Safety Measures during Adverse Weather

Further to the requirements of JSSS 2.7 [*Adverse Weather Requirements*], the Contractor shall ensure that Contractor's Equipment is parked in a stable and secure state by taking all necessary measures including:

(1) Dropping the jib, boom, arm and attachments to ground level and securing where necessary with adequate anchors and chains.

(2) If heavy rain and flooding can be anticipated, moving Contractor's Equipment to higher ground or to places where the risk of instability is limited.

(3) Removing snow or ice.

4.4 ROPES, SLINGS AND CHAINS

4.4.1 Requirements Generally

(1) The Contractor shall ensure that untested, uncertified, broken, damaged, deformed or defective ropes, chains or slings shall not be used.

(2) The safety factor for wire ropes, slings and chains shall be as recommended by the manufacturer of each type.

(3) Requirements for ropes, slings and chains shall be as specified in JSSS 5.4 [*Rigging Equipment*].

4.5 ALTERNATIVE USE OF CONTRACTOR'S EQUIPMENT

4.5.1 Requirements Generally

The Contractor shall not use Contractor's Equipment for any other purpose than the purpose for which it is designed and other than the purpose recommended by the manufacturer.

Use of Contractor's Equipment for any other purpose than the originally intended purpose are allowed only if it is not prohibited by either of the Laws the Country and the manufacturer's official operation, maintenance and repair manual and subject to HSO's approval after reviewing all the safety aspects.

In particular, when equipment for excavation is to be used for lifting, the HSO shall, in addition to other requirements provided in JSSS, confirm:

(1) Rigging Equipment (such as hook) is attached on an appropriate part of the excavation equipment (e.g. arm or bucket).

(2) Arms, bucket, Rigging Equipment have enough strength to lift the load.

(3) The lifting devices such as hook and shackles are firmly attached to arm or bucket of the

equipment.

(4) The lifting capacity for alternative use is confirmed by loading tests at the Site.

(5) Ensure that operators have accurately determined the total weight of the load, taking account of the weight of any attachments, the reach and angle and configuration of the equipment and have informed the HSO of this and obtained his permission before commencing the operation.

4.6 HIRED/LEASED CONTRACTOR'S EQUIPMENT

4.6.1 Requirements Generally

(1) Contractor's Equipment from hire or lease companies shall comply with all of the requirements of JSSS as if it were the Contractor's own property, in particular the Contractor shall ensure compliance with the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

(2) The Contractor shall ensure that the hire/lease companies have performed all necessary inspection, maintenance and repair works before the Contractor's Equipment is mobilised to the Site and that the following is provided with the equipment to the Contractor upon mobilisation and is available for the inspection of the Engineer:

(a) Inspection and maintenance records;

(b) Operation, repair and maintenance manuals; and

(c) Spare and replacement parts, tools, maintenance equipment, lubricants, filters, hydraulic fluids and the like.

(3) The Contractor shall double-check to ensure that the inspection and maintenance has been carried out and if the Contractor has any doubt over the adequacy of such inspection or maintenance or if complete records are not made available, the Contractor shall not allow this Contractor's Equipment to be used upon the Works. The Contractor shall inspect and carry out full maintenance and repair on such equipment in compliance with the requirements of this Chapter before it is certified for use by the HSO and used upon the Works.

(4) Operators from hire/lease companies are by definition Contractor's Personnel and they shall be treated as if they are employed by the Contractor, in terms of compliance with JSSS.

(5) Operators shall be tested and certified by the HSO, shall receive safety training and shall perform all inspection, maintenance and other requirements fully in compliance with JSSS, in the same way as the Contractor's own employees.

4.7 TEMPORARY FUELLING FACILITIES

4.7.1 Requirements Generally

(1) When the Contractor uses temporary fuel storage and dispensing facilities at the Site for the use of Contractor's Equipment, the Contractor shall design and construct them so that they are substantial and secure and capable of storing and dispensing fuel in a safe and environmentally acceptable manner all to the approval of the Engineer.

(2) The facility shall include storage tanks, suitable foundations, support or containment structures, protective bund walls as necessary, paved surfaces, screens, fencing and associated facilities for storage of separate fuels and lubricants and for offices, access and the like all of which shall be suitable and fit for the purpose for which they are intended.

(3) Unless otherwise specified in the Contract, all such tanks, foundations, support and containment structures, paved surfaces, fencing, screens and associated facilities shall be demolished, removed and disposed of in a safe and environmentally acceptable manner

by the Contractor on completion and taking-over of the Works. All areas shall be backfilled, restored to a safe and suitable condition, cleaned and landscaped.

(4) The Contractor must ensure that the temporary fuel storage and dispensing facility is operated and occupied at all time only by authorised personnel and that all unauthorised personnel are prohibited from entering such areas at all times. The Contractor shall be particularly careful and provide measures to prevent any unauthorised access, tampering, damage and theft at any time.

(5) All storage tanks shall be bunded either as jacketed tanks or by providing bunded enclosures, such that in the event of a catastrophic failure, the tank contents will be safely contained and shall not be allowed to run freely or enter the surface or ground water systems.

(6) The Contractor is reminded of the requirements of JSSS 2.8 [*Fire Prevention*] and will be required to provide a comprehensive and a high standard of fire protection in fuel storage areas.

コメントの追加 **[SS23]:** No. 50
JICA inquired as same as No. 48.
Please reply to this inquiry.

CHAPTER 5: HOISTING AND RIGGING

5.1 GENERAL REQUIREMENTS

5.1.1 Scope

(1) This Chapter specifies the safety requirements for Hoisting and Rigging Works which shall include:

(a) Hoisting Operations;

(b) Hoisting Equipment; and

(c) Rigging Equipment.

And hereinafter collectively referred to as "Hoisting and Rigging".

(2) General requirements for Contractor's Equipment for Hoisting and Rigging (including cranes) are included in JSSS 4 [*Contractor's Equipment*].

Additional particular requirements are contained in this Chapter.

5.1.2 Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Chapter or relevant to the subject of this Chapter and which are not fully covered by JSSS, the Contractor shall comply with the following standards:

(1) OSHA 1926.251 [Rigging equipment for material handling];

(2) OSHA Subpart R [Steel Erection];

(Note: Whilst this standard is related to Steel Erection, JSSS requires that this standard be applied to Hoisting Operations and associated rigging requirements in construction works generally)

(3) OSHA 1926.1413 [Wire rope – inspection]; and

(4) OSHA 1926.1414 [Wire rope - selection and installation criteria].

5.2 HOISTING OPERATIONS

5.2.1 Instruction for Contractor's Personnel

Further to the requirements of JSSS 1.7 [*Contractor's Safety Plans*], JSSS 1.9 [*Contractor's Method Statements*] and JSSS 1.15 [*Contractor's Safety Management Activities*], the Contractor shall include details of the following in the Method Statement and Safety Plan for Hoisting Operations and shall fully inform all Contractor's Personnel associated with such Hoisting Operations of these requirements before the commencement of any such operations, including:

(1) Scope, Area and Risk of the Hoisting Operation

(a) The scope of the required Hoisting Operation, the Rated Capacity, nature of Goods to be hoisted, location, required methods and safety arrangements;

(b) The Hoisting Operation boundary;

(c) Requirements on the ground conditions for installation, appropriate installation method taking account of all Hoisting Operation requirements, site and working conditions, location of obstacles, etc.;

(d) The working environment of the nearby areas to which particular attention should be paid (e.g. storage of Dangerous Goods or Hazardous Substances, Hazardous Areas, Operational Areas, or Overhead Services);

(e) The preservation of safe access for Contractor's Equipment and persons to, within and around the Hoisting Operations working area; and

(f) The potential danger of Hoisting Operations to any persons that are on the Site, and who may be affected by such operations.

(2) Hoisting Operation and Rigging Requirements

(a) The type(s) of Hoisting Equipment to be used and the Rated Capacity;

(b) The type(s) of Rigging Equipment to be used and the Rated Capacity;

(c) Hazards associated with the Hoisting Operation;

(d) Role and responsibility of the operator and each Rigger;

(e) Weight of Goods being hoisted;

(f) The shapes and characteristics of Goods being hoisted;

(g) The presence of any obstructions or Overhead Services and consequent restrictions on the movement and operation of Hoisting Equipment;

(h) Connecting and disconnecting techniques;

(i) The communication and signalling requirements (equipment to be used and standard signals); and

(j) The procedures in case of emergency.

(3) Identification of Personnel

(a) The identity of operators, Riggers and any other workers associated with the Hoisting Operation;

(b) The name of the authorised operator for each unit of Hoisting Equipment; and

(c) The identity of and location(s) for Spotters.

5.2.2 Operators and Riggers Generally

(1) The Contractor shall place signs on each unit of Hoisting Equipment showing the name of each authorised operator and clearly prohibiting all unauthorised persons from using, handling, operating or sitting at the controls of that equipment unit.

(2) Further to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*], the Contractor shall ensure that operators and Riggers are appropriately qualified, skilled and experienced in operation of the Hoisting Equipment to which they are assigned and duly certified as such by the HSO.

(3) Operators and Riggers shall be fully aware of the following:

(a) Work procedures, possible risks and operation methods;

(b) The need to stop all work when any defect or abnormality is detected;

(c) Not to remove, interfere with or override any safety devices;

(d) The identity of and location(s) for Spotters and the communication and signalling requirements including equipment to be used and signals; and

(e) The procedures in case of emergency.

(4) In addition, operators shall:

(a) Safely and competently operate the Hoisting Equipment;

(b) Keep all safety devices including emergency alarm and stop devices activated;

(c) Keep their assigned unit clean and carry out regular inspections prescribed by the Contractor before start of operation;

(d) Inform the Contractor's maintenance personnel of any apparent defect or

maintenance requirements; and

(e) Not use such Hoisting Equipment until any required repair or maintenance is performed.

(5) The Contractor shall assign only Riggers for Hoisting Operations and shall prohibit other workers from any involvement.

(6) The names of all assigned Riggers shall be posted prominently in the working area of the Hoisting Operation.

5.2.3 Safety Training

The Contractor shall provide health and safety training in accordance with JSSS 1.19 [*Safety Training Generally*]. taking account of the characteristics of the Hoisting Operations, Hoisting Equipment and Rigging Equipment.

5.2.4 Inspection of Hoisting Equipment and Rigging Equipment

(1) When the Hoisting Equipment is mobilised to the Site, the Contractor shall inspect the equipment complying with JSSS 4.2 [*Inspection, Maintenance and Repair*], to ensure that the equipment is free from defect and suitable for the planned Hoisting Operation.

(2) Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] and JSSS 4.2 [*Inspection, Maintenance and Repair*], the HSO shall ensure that all Hoisting Equipment and all Rigging Equipment is inspected and maintained when it is at the location of operation before the commencement of the first and of all subsequent Hoisting Operations.

Inspections shall include all items necessary to ensure the safe performance of the Hoisting Operations including the following examples and any further requirements due to the characteristics of the Hoisting Operation and the capability and condition of the Hoisting Equipment and Rigging Equipment including condition and performance of:

(a) Anti-two blocking devices (over-winding prevention devices) and over-load prevention devices;

(b) Other safety devices including brakes, clutches and controllers;

(c) Rails for trolley and runway;

(d) Hooks, sheaves, blocks, pulleys and the like;

(e) Cables, ropes and the like; and

(f) Rigging Equipment.

(3) Periodic inspection shall be made complying with JSSS 4.2 [*Inspection, Maintenance and Repair*] and include the following items:

(a) Condition of over-winding prevention devices, anti-two blocking devices (over-winding prevention devices), other safety devices, brakes, and clutches;

(b) Condition of wire ropes and hanging chains;

(c) Condition of the Hoisting Equipment;

(d) Condition of placement of winches; and

(e) Condition of electric wire, switchboard and controller.

(4) No Hoisting Equipment or Rigging Equipment shall be put into operation unless it has been inspected in accordance with the requirements of JSSS 4.2 [*Inspection, Maintenance and Repair*] and it is certified as safe to be used.

(5) The Contractor shall prepare standard checklists for the above regular and periodic inspections. The results of these inspections shall be recorded and kept in accordance

with JSSS 1.32 [*Health and Safety Records*].

5.2.5 General Safety Measures for Hoisting Operations

The Contractor shall:

(1) Select Hoisting Equipment which has a Rated Capacity and function compatible with the work conditions and requirements, including loads, surface conditions, access, working area, radius and angle of boom, etc.

(2) Clearly display the Rated Capacity of the Hoisting Equipment so that all operators and Riggers are fully aware at all times.

(3) Select Rigging Equipment with a Rated Capacity suitable for the Hoisting Operation.

(4) Select Rigging Equipment compatible with the purpose, work conditions and requirements.

(5) Ensure that operators and Riggers confirm that the load on the Rigging Equipment is less than the Rated Capacity.

(6) Activate all safety devices of Hoisting Equipment throughout the entire operation time(s) of any Hoisting Operations.

(7) Prohibition of entry

(a) Designate all Hoisting Operations as “Dangerous Work”, enclose the entire working area which is subject to any risk by providing temporary fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry*]; and

(b) The Contractor shall take measures to keep any unauthorised personnel away from any area where there is any risk of injury arising from the Hoisting Operation, due to fall of hoisted Goods, tangling, snagging, rebound of broken ropes or cables, broken sheaves, droppage and the like.

(8) Signalling

(a) Signalling between operators, Riggers and any associated workers regarding the Hoisting and Rigging Operations, shall only be carried out by Riggers, (hereinafter referred to as signallers);

(b) Signallers shall be located in a safe place outside the immediate area where the Rigging and Hoisting Operations are taking place, but in a location where they can clearly see suspended loads and can also see the operator and also be seen by such personnel;

(c) When it is not possible for signallers to give direct visible signals to the operator, hand-held radios or other communication tool as approved by HSO must be provided and used; and

(d) In addition, Spotters shall be placed and used only to keep any unauthorised personnel away from the working area.

(9) During Hoisting Operations:

(a) Check if the hoisting points, hooks and the like are positioned above the centre of gravity of the load to be hoisted;

(b) At commencement of all Hoisting Operations, stop the hoist at 30 cm from hoisting level, to check stability and ensure that all is in order before proceeding;

(c) Ensure that there are no persons and objects within the turning area when the Hoisting Equipment turns;

(d) After hoisting loads up to the safe height, adjust the boom gently;

(e) Always pay attention to any movement of the boom and the condition of suspended loads; and

(f) When unloading or detaching loads, stop once before landing and check the condition of the landing place and the load and then continue to lower gently.

(10) Ensure that operators shall never leave their seat or leave the controls while Hoisting Operations are in progress.

(11) Defects with Hoisting Equipment during operation

(a) Ensure that if operators notice any defect or abnormality in the Hoisting Equipment during Hoisting Operations (such as abnormal noise, temperature, smell, etc.) the operator shall stop the Hoisting Operation immediately;

(b) Identify the cause of the defect or abnormality and make necessary repairs by using authorised and qualified specialist mechanics, electricians or representative technical engineers authorised by the Hoisting Equipment manufacturer; and

(c) Ensure that the repaired Hoisting Equipment shall not be put in operation unless certified by the HSO.

(12) Condition of Ropes, Slings and Chains

Ensure that untested, uncertified, broken, damaged, deformed or defective ropes, chains or slings shall not be used.

(13) Adverse Weather

Take the following measures in addition to JSSS 2.7 [*Adverse Weather Requirements*]:

(a) Hoisting Equipment is left in a safe condition when not in use and particularly if adverse climatic conditions can be anticipated;

(b) All anchors, outriggers and supports are secure and adequate to fix and support the Hoisting Equipment in position during any adverse climatic conditions;

(c) Booms and jibs shall be secured to prevent any instability or collapse; and

(d) Before resuming any Hoisting Operation after any adverse weather, inspect Hoisting Equipment using the daily and periodic checklists specified in JSSS 5.2.4 [*Inspection of Hoisting Equipment and Rigging Equipment*].

(14) Use of Hoisting Equipment for Contractor's Personnel

As a general rule, Hoisting Equipment shall not be used for transporting or hoisting Contractor's Personnel.

In exceptional circumstances and if so approved by the HSO, use of Hoisting Equipment may be allowed when the following all measures are taken:

(a) Dedicated gondola for transporting or hoisting shall be provided;

(b) Prevention measures shall be taken to avoid turning and falling of gondola;

(c) The assumed load (i.e. 1.3 times of total weight of gondola and workers on board plus 500kgf (approx. 4.9kN) shall not exceed the Rated Capacity of the Hoisting Equipment;

(d) Wires and ropes of Hoisting Equipment shall have a safety factor of at least 10 against the assumed load;

(e) Wire ropes of Hoisting Equipment shall have a safety factor of at least 10 against the assumed load;

(f) Lowering the gondola shall be by powered system which prevents any free drop; and

コメントの追加 [SS24]: No. 55
JICA requested two units as shown to make clear understanding.
NK agreed.

(g) Use of PFAS of any Contractor's Personnel in the gondola shall be ensured.

5.3 HOISTING EQUIPMENT - CRANES

5.3.1 Planning, Installation and Removal

Unless otherwise approved by the HSO, the Contractor shall employ an appropriately qualified, skilled and experienced crane specialist(s) that shall select the required type and capacity of crane, plan the Hoisting Operation including mobilising, assembly, erection, use, dismantling and removal of cranes. The Contractor's specialist shall:

(1) Investigate the location and position for installation, plan the appropriate installation method taking account of all Hoisting Operation requirements, site and working conditions, location of obstacles, etc.

(2) Investigate the working area and ensure the safety of the crane and any crane rails.

(3) Design and construct crane foundation, assemble and install the crane with proper structural design and in compliance with the manufacturer's written instructions.

(4) Conduct completion inspection, load test and stability test of the crane.

(5) Dismantle and remove and transport cranes in a planned and systematic manner in compliance with the manufacturer's written instructions.

5.3.2 Additional Requirements for Mobile cranes

(1) Position mobile cranes where there are no obstacles within the operation range.

(2) Where obstacles exist, plan the appropriate operation to avoid the obstacles and ensure that operators and signallers comply with this plan.

(3) Ensue that ground has sufficient and even bearing capacity to prevent the crane from subsiding and overturning. Where necessary or where there is any risk of damaging surface paving or underground services, provide temporary steel plates of suitable size, thickness and to support the crane and avoid any risk of overturning during operation.

(4) Provide steel plate load-spreader pads to support outriggers and prevent them from subsiding.

(5) Fully extend outriggers or extension type crawlers to the maximum position.

(6) When the outriggers or crawlers cannot be extended to the maximum position, adjust the Rated Capacity of the mobile cranes to suit lower capacity commensurate to the actual extension length of outriggers or crawlers.

(7) Ensure that the actual Rated Capacity of the mobile crane is clearly shown and also advised to operators and Riggers.

(8) Activate the over-load prevention device of mobile cranes and accurately input the operational conditions of booms and outriggers.

(9) Cease the Hoisting Operation from time to time and check upon the condition of the outriggers or crawlers, implement adequate remedial measures if there is any subsidence and prohibit continuation of the Hoisting Operation until the crane has been re-inspected and certified as safe by the HSO.

(10) After the Hoisting Operation:

(a) When the mobile crane is not driven, fix the hooks of crane at the safe position;

(b) When the mobile crane is driven, take the following measures before driving:

(i) Attach fixing pin on each part;

(ii) Apply the brake of the turning device and winch drum; and

(iii) Turn off all switches related with operation of cranes.

5.4 RIGGING EQUIPMENT

5.4.1 Hoisting and Rigging Equipment

(1) All items of Rigging Equipment shall be labelled to show all pertinent information, such as the name of the manufacturer, date of manufacture, Rated Capacity, date of the latest periodic inspection~~,~~ and its expiration date, etc.

(2) The Contractor shall obtain Rigging Equipment from reputable manufacturers approved by the HSO and shall not make or repair his own Rigging Equipment at the Site.

(3) Rigging Equipment shall only be used:

(a) When certified as safe for use by the HSO in accordance with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*];

(b) Within the Rated Capacity; and

(c) In compliance with the manufacturer's written instructions.

(4) Rigging Equipment shall be removed from service, tagged as such and destroyed or removed from the Site, where required by the standards noted in JSSS 5.1.2 [*Compliance Standards*] including (but not limited to) the following conditions:

(a) Wire ropes

(i) Where one-tenth or more of the element wires are broken or cut in any one (1) strand;

(ii) Where the reduction ratio of diameter due to use, exceeds 7% of the original nominal diameter at the date of manufacture;

(iii) With kink or deformation; and

(iv) With excessive wear, corrosion or defect.

(b) Chains

(i) Where elongation due to use exceeds 5% of the original nominal length at the date of manufacture;

(ii) Where the diameter of links has reduced by more than 10 % since the date of manufacture; and

(iii) With excessive wear, cracks, corrosion or defect.

(c) Hooks, shackles

(i) Signs of deformation; and

(ii) With excessive wear, cracks, corrosion or defect.

(d) Synthetic fibre ropes or slings

(i) Broken or cut strands; and

(ii) With excessive wear or defect.

5.4.2 Further Safety Requirements for Rigging

The Contractor shall fully comply with the requirements of the standards noted in JSSS 5.1.2 [*Compliance Standards*] including taking the following measures to prevent the risk of injury:

(1) Attach colour-coded self-adhesive vinyl tape and labels for slings visibly indicating the month of inspection and whether suitable for use.

(2) Inspect all Rigging Equipment before start of work.

(3) Select and use suitable Rigging Equipment depending on the weight and shape of Goods.

(4) Apply appropriate set up, provide fittings and accessories including clips and friction pads during Hoisting Works to ensure that the hoisted load (including bundled loads) are secure and will not move or slip, for example, cable-laid slings referred to BS EN 13414-3 Steel wire rope slings – Safety, Part 3: Grommets and cable-laid slings.

(5) Hoist loads at or above the centre of gravity.

(6) Attach guide ropes to the hoisted loads to assist with positioning.

(7) Securely store and protect Rigging Equipment to maintain in good condition and to prevent damage from rain, dust or contamination.

CHAPTER 6: TEMPORARY WORKS

6.1 GENERAL REQUIREMENTS OF TEMPORARY WORKS

This Section 6.1 applies to all Temporary Works included in JSSS 6.

6.1.1 Design and Provision of Temporary Works ~~Generally~~

Unless otherwise specified in the Particular Safety Specification, the Contractor shall take all necessary measures for the study, design, management, provision, safe use and safe removal of all Temporary Works as necessary to safely and systematically execute the Permanent Works and in accordance with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*], JSSS 1.37 [*Design and Management of Temporary Works*] and the specified standards.

The Contractor shall comply with the requirements specified in the Contract for Temporary Works and:

(1) Provide Temporary Works which are fit for the purpose for which they are intended and fully in accordance with the JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

(2) Manage the design, use and removal of Temporary Works fully in accordance with JSSS 1.37 [*Design and Management of Temporary Works*].

(3) Maintain and repair all Temporary Works when in use to ensure the continued optimal and safe performance.

(4) Monitor all Temporary Works when in use and any affected Permanent Works, existing buildings, structures, ground or surfaces that may be affected by the Temporary Works through regular inspection and (where necessary and specified) with relevant instrumentation to ensure that the Temporary Works are performing safely, to the designed limits and intended purpose.

(5) Ensure that:

(a) Modification of Temporary Works is not allowed unless it is authorised by the HSO;

(b) Unauthorised use of Temporary Works by any persons is not allowed;

(c) The HSO shall inspect all Temporary Works upon completion of erection and certify and label them as safe for use before any use is allowed;

(d) The HSO shall regularly inspect Temporary Works and certify and label them appropriately to ensure the continuous safe use or, in the event that faults are discovered, certify them as "Not Safe for Use" and prevent access to the Temporary Works until repaired and re-inspected;

(e) The HSO shall inspect Temporary Works upon the completion of the required Permanent Works and before Temporary Works are dismantled, demolished and removed accompanied by the Contractor's Temporary Works staff specified in JSSS 1.37 [*Design and Management of Temporary Works*] as appropriate, and certify that the Permanent Works are completed and the Temporary Works can be safely removed; and

(f) The HSO shall inspect after removal of the Temporary Works to ensure that removal has been completed properly and that no part of the Temporary Works remains, that any rectification of the Permanent Works is completed and all is left in safe order and condition.

(6) Safety Plan for Temporary Works

The Contractor shall include details of all Temporary Works in the Safety Plan to be

コメントの追加 **[SS25]:** Heading is changed simply to be consistent with the abbreviated titles used in some other Chapters
We recommend that this process be extended to introduce further consistency and remove other unnecessary wording.

submitted in accordance with JSSS 1.7 [*Contractor's Safety Plans*].

6.1.2 Method Statements

Refer to JSSS 1.9 [*Contractor's Method Statements*].

6.1.3 Monitoring the Performance ~~of Temporary Works~~

(1) The Contractor shall monitor the Temporary Works to demonstrate that they are performing safely, to the designed limits and for the intended purpose.

(2) For more details, refer to JSSS 2.1.7 [*Monitoring and Records*].

(3) Contract Compliance

Notwithstanding the requirements of JSSS 2.1.7 [*Monitoring and Records*], the Contractor is reminded of his overall responsibility under the Contract for the Temporary Works.

The Contractor shall satisfy himself that the monitoring criteria and requirements specified in JSSS 2.1.7 [*Monitoring and Records*], or in other respective Chapters of JSSS and/or in the Particular Safety Specification, are sufficient to comply with his obligations under the Contract and he shall take any additional measures necessary to ensure the adequacy, stability and safety of Temporary Works.

6.1.4 Compliance Standards

(1) By reference to JSSS 1.37 [*Design and Management of Temporary Works*] and unless otherwise specified in the Particular Safety Specification, the Contractor shall comply with Sections 1 and 2 of BS5975, Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework as management standard with respect to design, erection, use and dismantling of Temporary Works.

(2) In relation to Temporary Works, the Contractor shall, subject to JSSS 1.4.5 [*Specified Standards*] also comply with:

(a) Section 3: Falsework of BS5975, Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework; and

(b) Such standards that are referred to in particular parts of JSSS.

6.2 EARTHWORK SUPPORT

6.2.1 General

(1) Refer to JSSS Annex 1.1: [*Definitions and Abbreviations*] for the definition of Earthwork Support.

(2) The Contractor shall maintain the structural integrity of the Works and Other Properties that could be affected by the Excavation Works and shall provide and maintain whatever Earthwork Support is necessary to comply with this requirement and ensure the safety of all persons that are in, under or adjacent to any excavation and to avoid any damage.

(3) Earthwork Support shall include for example:

(a) Timberwork including sheeting, planking, strutting and support systems;

(b) Steel sheet piling including shoring, strutting and support systems;

(c) Specialised support systems such as diaphragm walling, steel pipe piling, contiguous piling, soldier piling and lagging, and the like;

(d) Ground improvement, slope stabilisation, injection, ground freezing and the like; and

(e) Ground Anchors.

(4) In the case of (a) and/or (b) following, the Earthwork Support may not be required if, in the opinion of the HSO, conditions of the excavation are sufficiently safe, stable and free from danger of movement or collapse, and if the HSO gives permission that no-Earthwork Support is required:

(a) Excavation in rock; and/or

(b) Excavation less than 1.5 m deep.

(5) For sloping or benched sides to excavations (in lieu of Earthwork Support), refer to JSSS 7.2.1 (3).

6.2.2 Planning and Design

The Contractor shall design all Earthwork Support so that it is fit for the purpose for which it is intended and take account of ground conditions and surrounding conditions including:

(1) The effects of ground water including liquefaction, boiling or piping, heave, displacement and the like.

(2) The effect of vibration from site operations including piling or ground improvement.

(3) The effect of adjacent road or rail traffic.

(4) The requirements for safe access and working space necessary to execute the Works.

6.2.3 Monitoring

Refer to JSSS 2.1.7 [*Monitoring and Records*] for general requirement of monitoring and records.

The Contractor shall prepare a Monitoring Plan covering visual and instrument monitoring based on Table 6.2.1 [*Example of Visual and Auditory Monitoring Items*] and Table 6.2.2 [*Example of Instrument Monitoring Items*]

The contents of the tables are reference only and the Contractor shall prepare a detailed Monitoring Plan and submit to the Engineer as a part of the Safety Plan or the Method Statement.

Table 6.2.1: Example of Visual and Auditory Monitoring Items

	Locations	Monitoring Items
1	Earthwork Support: Faces, sheeting and piling	Meander/horizontal displacement and vertical displacement along top. Crack, deflection and swelling. Water leakage, mud inflow. Opening of joints or gaps in Earthwork Support.
2	Earthwork Support: Piles, walings and struts	Deflection, deformation and abnormal sound of struts and walings and other members. Settlement, floatation and twist of piles. Vertical or horizontal displacement of walings, struts and other members. Opening of joints or breakage of cross members, or breakage and loosening of bolts.
3	Base of Excavation	Water spring and ground water flow. Sand boiling. Heaving of the base. Liquefaction.
4	Neighbouring or adjacent Ground, paving and roads	Cracks, collapse, subsidence of pavement or ground surfaces. Opening of joints in paving and kerbs.
5	Neighbouring or adjacent Buildings or Structures	Cracks, subsidence, deformation and tilting of structures.
6	Underground Utilities	Displacement or leakage of or damage to underground utilities.

Table 6.2.2: Example of Instrument Monitoring Items

	Locations	Monitoring Items
1	Earthwork Support: Faces, sheeting and piling	Displacement, stress of Earthwork Support. Earth pressure and water pressure acting on Earthwork Support.
2	Earthwork Support: Piles, walings and struts	Axial force of struts, other supports and ground anchors.
3	Base of Excavation	Displacement of base of excavation. Water pressure of ground water, rate of water inflow.

4	Neighbouring or adjacent ground, paving and roads	Displacement of neighbouring or adjacent ground. Ground water level.
5	Neighbouring or adjacent buildings or structures	Displacement; cracks, weakening, subsidence, deformation and tilting of structures.
6	Underground Utilities	Displacement or leakage of or damage to underground utilities.

6.2.4 General Safety and Construction Requirements

(1) Materials and equipment to be used for Earthwork Support shall be appropriate for the width and depth of the excavation and free from damage or defects that might impair their proper function.

(2) Workers shall not be allowed to enter any excavation until Earthwork Support is installed prior to the work commencing.

(3) Earthwork Support shall proceed progressively so that no excavated faces are left without support or at risk of weakening or collapse at any time.

(4) Excavation to a level greater than 60cm below the planned bottom level of support when the support itself is not yet installed shall not be allowed.

(5) If temporary removal of individual members of Earthwork Support is necessary, safety measures shall be taken to ensure the safety of workers, such as installing additional temporary struts to support the additional loads imposed on parts of the system.

(6) When removing Earthwork Support, the Contractor shall prohibit anyone other than the workers engaged in the removal work to enter the working area and vicinity.

(7) Backfilling and compaction of any excavation shall be performed in parallel with the removal of Earthwork Support.

6.2.5 Safety Measures for Shoring

(1) “Shoring” shall include walings, struts and like support.

(2) Shoring shall be securely installed and fixed to Earthwork Support to prevent detachment and any movement or failure.

(3) All members acting in compression (excluding diagonal struts) shall be butt-jointed, and timber shoring shall be jointed with two or more doubling plates.

(4) Connecting parts of shoring or diagonal shoring or intersections, shall be reinforced with backing plates and bolts (timber) and welding with reinforcing plates (steel).

(5) For earth retaining work with intermediate piles, fix struts on intermediate piles rigidly.

(6) When shoring is fixed to or relies on an existing structure or building, the Contractor shall ascertain that the structure or building is able to withstand the applied load.

(7) Gaps between earth retaining wall (steel sheet piles, H-shape steel piles and the like) and walings shall be filled with mortar, concrete, steel plates and suitable wedges.

(8) Connections between struts and walings shall be reinforced with ready-made stiffeners, stiffener plates, concrete/mortar filling, stiffener jacks, etc.

6.2.6 Safety Measures for Ground Anchor Works

(1) Anyone other than designated personnel shall not operate the boring machine.

(2) No one (except those essential to the post-tensioning operations) shall be permitted to be behind the tensioning jack during tensioning to prevent any injury through breaking of the anchor tendon during tensioning.

(3) The Contractor shall check any damage in the grout hoses and joints before commencing any grout injection.

6.2.7 Adjacent Goods, Excavated Spoil and the like

(1) When placing any Goods, excavated spoil and the like on the ground surface at the top and adjacent to any excavation, the Contractor shall take measures to prevent it from falling.

(2) The Contractor shall not place any Goods, excavated spoil, backfill material and the like where the weight exceeds the load considered in the design of the Earthwork Support.

6.3 COFFERDAMS

6.3.1 General

(1) Refer to JSSS Annex 1.1: [*Definitions and Abbreviations*] for the definition of Cofferdam.

(2) Cofferdams are generally constructed as earth dykes, caissons, steel sheet piling, double steel sheet piles, steel pipe piles and the like.

6.3.2 Planning and Design

The Contractor shall design Cofferdams so that they are fit for the purpose for which they are intended and take account of ground conditions and surrounding conditions including:

(1) The effect of vibration from site operations including piling or ground improvement.

(2) Access and working space necessary to execute the Works.

(3) River discharge, water levels, tide levels, wave height, free board, seismic load, external force and any other relevant water conditions.

(4) Waterborne traffic.

(5) Avoidance of any damage by piling operations and the protection of the structural integrity of existing river or canals, banks, dykes and the like.

(6) Reduction of river cross sectional area, increased flow rates and protection of the structural integrity of existing river or canal banks, dykes and the like.

(7) Effects of tides, wave action, flooding and the like, the consequent need for additional shoring and avoidance of loosening of shoring and joints.

(8) Provision of at least two safe evacuation routes from the working areas by means of ladders, stairs, etc. to evacuate in the case of any danger of collapse of or inundation in the Cofferdam.

(9) Provision of life-saving equipment including buoyancy jackets, lifebuoy, ropes and (where necessary) standby boats.

(10) Measures for avoiding water pollution from construction and dismantling of Cofferdams.

(11) Measures for safe dismantling and removal.

6.3.3 Monitoring

Refer to JSSS 2.1.7 [*Monitoring and Records*] for general requirement of monitoring and records.

The Contractor shall prepare a Monitoring Plan covering visual and instrument monitoring based on Table 6.3.1 [*Example of Visual and Auditory Monitoring Items*] and Table 6.3.2 [*Example of Instrument Monitoring Items*].

The contents of the tables are reference only and the Contractor shall prepare a detailed Monitoring Plan and submit to the Engineer as a part of the Safety Plan or the Method Statement.

Table 6.3.1: Example of Visual and Auditory Monitoring Items

	Locations	Monitoring Items
1	Cofferdam Generally	Water seepage. Ability and capacity of pumping arrangements to maintain safe working conditions. Meander/horizontal displacement and vertical displacement

		along top. Crack, deflection and swelling. Opening of joints.
2	Piles, walings, struts, shoring and other members	Deflection, deformation and abnormal sound of piles, walings, struts, shoring and other members. Opening of joints or breakage of piles, cross members, or breakage and loosening of bolts.
3	Base of Excavation	Water spring and ground water flow. Sand boiling. Heaving of the base.
4	Neighbouring Properties or Structures on or outside the Site	Cracks, subsidence, deformation and tilting of structures.

Table 6.3.2: Example of Instrument Monitoring Items

	Locations	**Monitoring Items**
1	Cofferdam Generally	Displacement, stress of Earthwork Support. Earth pressure and water pressure acting on Earthwork Support.
2	Shoring and struts	Axial force of strut, other supports and ground anchors.
3	Base of Excavation	Displacement of base of excavation. Water pressure of spring of water, water inflow.
4	Neighbouring Properties or Structures on or outside the Site	Displacement: cracks, weakening, subsidence, deformation and tilting of structures.
5	Underground Utilities	Displacement, damage or leakage of underground utilities.

6.3.4 General Safety and Construction Requirements

(1) For shoring works, refer to JSSS 6.2.5[*Safety Measures for Shoring*].

(2) The Contractor shall provide training to all Contractor's Personnel who are to work on the construction, maintenance and removal of the Cofferdam or within the Cofferdam, so that they are aware of all risks and countermeasures including water leakage, adverse weather, severe waves or adverse water conditions, so that they can work safely and when necessary, evacuate the working areas efficiently and safely.

(3) The Contractor shall display visible and clear warning notices of all hazards and advisory notices giving directions and information, including emergency contacts, safe escape routes, directions to and locations of life-saving equipment, assembly areas, evacuation

boats and the like.

(4) The Contractor shall implement measures to prevent collisions with waterborne traffic, including warning signs and lights during the night or in heavy rain mist or fog.

(5) The Contractor shall establish a system to confirm the safety of the Cofferdams, appoint a person-in-charge who shall be present at all times and shall be responsible for issuing an evacuation order if and when necessary.

(6) The Contractor shall evacuate Contractor's Personnel whenever there is any danger due to water leakage through Cofferdams or from the ground within the working area.

(7) Whenever any defect is identified in the Cofferdam, the Contractor shall implement repair and improvement measures to ensure the safety of Contractor's Personnel and prevent any personnel from re-entering the Cofferdam until it has been inspected by the HSO and certified by him to be safe for use.

6.3.5 Excessive and Sudden Rise in Water Level.

(1) The Contractor shall analyse any risk due to sudden rise of water level and excessive water level above the design basis for the highest water level and prepare for this as applicable in the Safety Plan.

(2) This shall include procedures for monitoring water levels as described below.

(a) Monitoring water levels with instruments and recording equipment at the Site and obtaining forecasting information of water levels;

(b) Communications among persons in charge of monitoring of water levels, persons responsible for the works in the Cofferdams, the HSO and workers in the Cofferdam;

(c) Instructions to Contractor's Personnel for evacuation;

(d) Stop work in accordance with JSSS 1.13 [*HSO – Scope of Duties and Authority*]; and

(e) Resume work when water level has subsided and after inspection and certification by the HSO that it is safe to do so.

6.3.6 Monitoring ~~Water Level and Other Conditions~~

In addition to the requirements of JSSS 2.1.7 [*Monitoring and Records*], the Contractor shall monitor and keep records of all climatic, river, lake or marine conditions in the direct vicinity of any Cofferdam including for example, the water level at various times throughout the day, tidal data, speed and direction of waterflow, wave height, wind speed and direction.

The Contractor shall provide all instruments and facilities to obtain the data and submit reports to the Engineer on a daily basis and compile on weekly basis.

6.4 WALKWAYS

6.4.1 General

(1) This Section includes safety measures relating to the safe movement of persons to and around the Site with respect to walkways.

(2) Refer to JSSS 2.5.7 *[Preventing Falls from Walkways]* for interpretation of the word "walkways".

(3) ~~Ladders and stepladders (other than fixed ladders) shall not be used for walkways in principle.~~ Staircases shall be provided in principle where persons are necessary to move up and down. Ladders and stepladders may be used only if the HSO considers the risk of their use to be low.

(4) For temporary steps and staircase structures the requirements of JSSS 6.5 [*Scaffolding*] shall apply.

(5) For Fall prevention from walkways, ladders and stepladders the requirements of JSSS 2.5 [*Fall Prevention*] shall apply.

(6) Details of the following shall be included in the Safety Plan required by JSSS 1.7 [*Contractor's Safety Plans*] and JSSS 6.1.1 (6) [*Safety Plan for Temporary Works*]:

(a) Locations and available periods of walkways to be provided;

(b) Drawings of walkway structures, indicating structure type, materials and main dimensions for bridge type walkways where the height and length is 10m or more;

(c) Types of temporary walls, barriers or other separation between walkways and working areas, roads or footpaths on or around the Site; and

(d) Locations of emergency exits and evacuation routes.

(7) The Contractor shall:

(a) Provide designated walkways to, in and around the various workplaces at the Site to ensure the safe and secure movement of all persons at all times;

(b) Provide and maintain clear signage so that all users are aware of the locations and routes;

(c) Provide and maintain adequate lighting;

(d) Ensure that walkways have sufficient dimensions and load-bearing capability for the intended purpose;

(e) Ensure that there are no obstacles in walkways and that surfaces are level and safe, maintain all in a clean and orderly condition to avoid any falls, slips and injury;

(f) Ensure that walkways do not exceed a gradient of 30 degrees. Steeper gradients shall be provided with steps or staircases or ladders where appropriate; and

(g) Ensure that ramps, steps and staircases have slip resistant surfaces and that they are provided with handrails and toe boards in accordance with JSSS 2.5.5 [*Handrails*] and JSSS 2.5.6 [*Toeboards*].

6.4.2 Emergency Exits and Safe Evacuation Routes

The Contractor shall provide clear and illuminated signage so that all persons are made aware of the locations of emergency exits and safe evacuation routes and maintain all such locations and routes in a clean, safe and readily available condition.

6.4.3 Vertical Access

The Contractor shall provide steps, stairs and ramps as means of providing safe access or egress from excavations or different working levels.

コメントの追加 [SS26]: JICA requested to stipulate this sentence in Japanese. NK prepared this in English, so please edit this English.

JICA sentence is "上下の移動が必要な場所には原則として階段を設ける".

Steps, stairs and ramps shall be constructed as follows:

(1) With Scaffolding in accordance with JSSS 6.5 [*Scaffolding]*, provided with handrails and non-slip treads.

(2) With purpose made timber or metal ramps comprising plywood boarding and structural timber framing.

6.4.4 Ladders and Stepladders

For the purposes of interpretation and unless otherwise stated in JSSS the word “ladders” shall be deemed to mean portable ladders, namely those that can be easily moved or carried even if temporarily restrained and that are not an integral part of a building, structure or equipment.

~~Fixed ladders meaning those that are permanently attached to a building, structure, or equipment shall be the subject of separate design by the Contractor if for use in Temporary Works or by the Employer if for use in Permanent Works.~~

~~Fixed ladders whether for use in Temporary Works or Permanent Works shall be provided with fall protection for lengths of 7.32 metres and above in accordance with ANSI standard A14. 2-1990.~~

The Contractor shall comply with the following requirements regarding the use of ladders and stepladders:

(1) Ladders shall:

(a) Be of sound structure, clean and not contaminated by any slippery material;

(b) Be without visible signs of defect, damage, corrosion, and shall otherwise in safe condition;

(c) Be at least 30 cm wide;

(d) Have steps with an interval of 25cm to 35cm and evenly spaced; and

(e) Have slip-proof steps or have other measures to prevent slipping.

(2) Stepladders shall

(a) Be of sound structure, clean and not contaminated by any slippery material;

(b) Be without visible signs of defect, damage, corrosion, and shall otherwise in safe condition;

(c) Have an angle between the front rail and the floor not exceeding 75 degrees and for folding stepladders they shall be equipped with a lock (such as a spreader with lock) to secure the angle made by the front rail and the floor;

(d) Steps shall be non-slip and of sufficient size to ensure safe operation; and

(e) Rails shall have non-slip feet or shoes.

(3) Use of ladders and stepladders

The Contractor shall ensure with respect to use of both ladders and stepladders that:

(a) Users shall read and follow all labels/markings on ladders or stepladders, be aware of and never exceed the maximum load rating of the ladder or stepladder and of the weight it is supporting, including the weight of any tools or equipment;

(b) Users shall avoid electrical hazards, always look for overhead power lines before handling ladders or stepladders. Avoid using metal ladders or stepladders near power lines or exposed energised electrical equipment;

(c) Ladders or stepladders shall be inspected prior to use. If a ladder or stepladder is damaged, it shall be removed from service and suitably tagged until repaired or

コメントの追加 [SS27]: No. 60
JICA commented to delete theses two sentences with the following reasons:

（理由）
➢fixed ladder
は鋼製で構造物に堅固に設置された垂直方向の移動に用いられるものを想定していると考えられるが、OSHA等の記述をみると安全対策として多岐にわたる記述があり、ご提案の記載ではあまりに不十分（また、7.32mを超えるladderはANSI A14.2-1990に従うという根拠は見出せません。（ANSI自体が2017年に見直されA14.2～14.5に変わっています））。
➢従って今般作成のJSSSではfix ladderについては扱わない整理とする。
➢すると6.4.4冒頭に追記されたthe word “ladders” shall be deemed to mean portable ladders,という表現とも整合する。
➢6.4.1
(3)については、「梯子は原則として使わない」ではなく、「原則として階段を使う」ことが記述されるべき。その上で、二つ目の文（安全性が確保されるとHSOが認められた場合に限ってはしごを使ってよいという記述）につなげる。
➢かかる原則論を記述することを前提に、2.5.7 (1)に「階段」を加える。

discarded; ~~and~~

(d) Ladders or stepladders shall only be placed on a stable, firm and sufficiently strong base giving level and safe support and so that the rungs or steps remain horizontal, as well as any loading placed on it; and

(e) The top rung of a ladder or top step of a stepladder shall not be used as a rung/step unless designed for that purpose.

コメントの追加 **[SS28]:** Moved from 6.4.4(5)(g) with some modification.

(4) Additional Requirements for Use of ladders

The Contractor shall ensure with respect to use of ladders:

(a) Ladders shall maintain an angle between foot and floor of L (horizontal length): H (height) = 1: 4 (75.5 degrees);

(b) Ladders shall have the top projecting at least 1 m over the landing floor;

(c) Ladders shall not be placed on boxes, or other unstable bases to obtain additional height and connected ladders to give greater height or reach shall not be allowed;

(d) Suspended ladders shall be anchored in a secure manner so that they cannot be displaced or swing;

(e) Ladders shall be secured before any use and prevented from slipping during use by:

(i) Securing the side rails at or near the top and the bottom; and

(ii) Providing an effective anti-slip shoe or foot~~; and~~

~~(iii) Having another worker support the lower part of the ladder~~.

コメントの追加 **[SS29]:** JICA commented There is no such provision of (iii) and when fixed both top and foot, no need support by other worker.

(f) No extendable ladder shall be used where its sections cannot be locked and which could therefore move while in use; and

(g) Where a ladder or a series of ladders rise for a vertical height of 9 m or more above the base level, safe landing areas or rest platforms shall be provided at suitable intervals wherever possible.

(5) Additional Requirements for Use of Stepladders

The Contractor shall ensure with respect to use of stepladders:

~~(a)~~ Stepladders shall not be used for work at heights of 2m or more. The Contractor shall adopt other measures for work in excess of 2m such as or providing Scaffolding in accordance with JSSS 6.5 [*Scaffolding*];

(b) ~~Step ladders~~ Stepladder shall not be used as a single ladder or in a partially closed position;

コメントの追加 **[SS30]:** Typo:

(c) Treads of stepladders shall have the correct sized area and slip resistant finish for safe working;

(d) Restraint Clasps shall be securely locked before any use;

(e) Stepladders shall not be placed on unstable or uneven surfaces;

(f) Stepladders shall not be positioned in front of doors;

~~(g) The top rung of a ladder or step of a step ladder stepladder shall not be used as a rung/step unless designed for that purpose;~~

コメントの追加 **[SS31]:** JICA commented to move this to 6.4.4 (3) because this stipulate for both ladder and stepladder.
NK agreed.

(h) For use of Stepladders as a support for trestle Scaffolds refer to JSSS 6.5 [*Scaffolding*]; and

(i) The user can maintain a safe handhold when carrying a load unless this is otherwise justified by the height of the task, nature of work and the like.

6.4.5 Inspection

In accordance with JSSS 1.13 [*HSO - Scope of Duties and Authority*] the HSO shall regularly inspect all walkways, ladders and ~~step ladders~~ stepladders, ensure that same are safe and fit for the intended purpose and visibly certify each as safe for use or otherwise.

6.5 SCAFFOLDING

6.5.1 General

(1) This Section contains requirements for various types of Scaffolding including supported scaffolds (for example tube and coupler scaffolds and fabricated frame scaffolds), mobile scaffolds, suspended scaffolds, trestle scaffolds and mobile elevating work platforms.

(2) Not all types of Scaffolding are separately described in this Section and the requirements of this Section are therefore of general application. Requirements for any one (1) type of Scaffolding shall also apply generally to all types and configurations unless otherwise stated or apparent from the wording and context.

(3) All Scaffolding shall be designed, erected, tested, inspected, used, dismantled and removed by Contractor's Personnel that have been trained and certified for such operations in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*].

(4) All Scaffolding, shall be carried out in compliance with the manufacturer's written instructions or the design of the Contractor.

(5) The design, management, provision, safe use and safe removal of Scaffolding shall comply with the requirements of JSSS 6.1.1 [*Design and Provision of Temporary Works Generally*].

(6) Unless specified elsewhere in JSSS or in any of the compliance standards, all Scaffolding and Scaffold components shall be capable of supporting, without failure, its own weight and at least 4 times the maximum intended load applied or transmitted to it.

(7) Scaffolds and Scaffold components shall not be loaded in excess of their maximum intended loads or rated capacities, whichever is less.

(8) Scaffolding shall not be used for any purpose other than the intended original purpose and for example shall never be used for hoisting loads. The Contractor shall provide other specific types of Contractor's Equipment (such as material hoists) for that purpose.

(9) Scaffolding shall be removed immediately upon completion of the work for which it is provided.

6.5.2 Compliance Standards

(1) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall comply with any one (1) of the following standards:

(a) OSHA 1926 Subpart L [Scaffolds];

(b) ANSI/ASSP A10.8 – 2019 Scaffolding Safety Requirements equipment - Part 1: Scaffolds [Performance requirements and general design]; and

(c) BS EN12811-1:2003 Temporary works equipment - Part 1: Scaffolds [Performance requirements and general design]

6.5.3 Notices to be Displayed ~~on Scaffolds~~

(1) Following inspections by HSO, suitable signage shall be applied to Scaffolds clearly indicating for example:

(a) "Scaffold Complete and Safe For Use";

(b) "Scaffold Not Complete - Do Not Use"; and

(c) "Scaffold Not Safe For Use".

(2) When any Scaffold is to be used for loading of Goods, the Contractor shall display a notice indicating the maximum load capacity of each Scaffold.

(3) Scaffolds shall also be tagged with the names of the erector and the person responsible for inspection and maintenance of the Scaffold.

(4) All notices shall be clearly visible and in easy-to-see locations.

6.5.4 Scaffolding Assembly, Erection, Alteration and Dismantling ~~Generally~~

The Contractor shall take the following measures when assembling or erecting, altering or dismantling all types of Scaffolding:

(1) Scaffolding shall be assembled or erected, altered and dismantled only by competent personnel and the work should always be carried out under the direction of a competent Superintendent.

(2) Working areas where Scaffolding is being assembled or erected, altered and dismantled shall be enclosed with temporary fences or barriers. The Contractor shall prevent entry of any non-authorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry*].

(3) During erection of Scaffolding 2m high and above, boarded areas shall be provided for safe temporary storage of Scaffolding tubes, couplings, fittings or components and other materials and equipment.

(4) All workers engaged in the assembly or erection, alteration and dismantling of any Scaffolding shall be provide with PFAS and ensure that such workers use this.

(5) Scaffold boards shall each be securely fixed at a sufficient number of points to provide constant support with no movement or dislocation and no gaps that may create a dropping hazard.

(6) When moving Scaffold boards, ensure that they are securely supported in at least three (3) locations, the length of any projection from supports shall be at least 10cm and not exceeding one-eighteenth of the length of the Scaffold boards.

(7) When stacking the timber sole plate or runners ensure that they are stacked in the longitudinal direction, over supports and with 20 cm overlaps.

6.5.5 Inspection and Maintenance ~~of Scaffolding~~

Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the Contractor shall comply with the following:

(1) Every Scaffold from which a person could fall 2m or more shall be thoroughly examined by the HSO (or his delegated assistant):

(a) Before it is brought into use;

(b) After any substantial alteration or extension;

(c) At least once in every 7 days; and

(d) Whenever it has been exposed to adverse climatic conditions, earthquake or other factors which may have affected its safety.

(2) A written record of the examination and regular inspections with details of any repair measures shall be prepared and kept by the HSO.

(3) The examinations and regular inspections shall include:

(a) Check that the Scaffold is provided and used in accordance with the Method Statement, Safety Plan and its design;

(b) Condition of Working Platforms and of any damage to fixings;

(c) Condition and any loosening at the fastening, connecting and mounting, portions of standards, ledgers, brackets, and the like;

(d) Condition and any damage and corrosion of couplings, fittings, clamps and accessories;

(e) Condition and any damage and corrosion of fall prevention facilities and that they are intact and secure;

(f) Condition of mountings and presence of toe boards;

(g) Condition of bases, screw jacks, castors, brakes, sole plates and the like and ensure there is no movement or settlement;

(h) Condition of mountings and presence of diagonal bracings, stays, anchors, ties and other bracing, support or reinforcement materials; and

(i) Condition of mountings and presence of posts, standards, ledgers and transoms.

(4) The Contractor shall carry out all necessary remedial and repair work necessary to rectify any deterioration, defect or damage and shall, if necessary, stop the use of the Scaffolding until such work has been properly completed, re-inspected and re-certified as safe for use by the HSO.

6.5.6 Scaffold Platforms

Scaffold platforms shall comply with the following:

(1) Each platform on all working levels of Scaffolding shall be fully planked or decked between the front uprights and the handrail supports as follows:

(a) Platforms shall be of adequate size and strength and with true dimension and no twist or bending, no splits, holes or damage;

(b) Each platform unit shall be installed so that the space between adjacent units and the space between the platform and the uprights is no more than 2.5 cm wide, except where the Contractor can demonstrate that a wider space is necessary;

(c) Where the Contractor makes the demonstration provided for in paragraph (b) above, the platform shall be planked or decked as fully as possible and the remaining open space between the platform and the uprights shall not exceed 24 cm.; and

(d) The requirement to provide full planking or decking does not apply to platforms used solely as walkways or solely by the workers performing Scaffold erection or dismantling. In these situations, only the planking that the Contractor establishes is necessary to provide safe working conditions is required.

(2) Except as may be provided separately for individual types of Scaffold, Scaffold platforms and walkways shall be at least 45 cm wide.

Where it is not practicable to provide 45 cm width, the Contractor shall secure a width as wide as feasible for the work, and the workers on those platforms and walkways shall be protected from fall hazards by the use of handrails and/or personal fall arrest systems.

(3) Except as provided separately for individual types of Scaffold, the front edge of all platforms shall not be more than 36 cm from the face of the work, unless handrails are erected along the front edge and/or personal fall arrest systems are used to protect the workers from falling.

(4) Further requirements to those specified above, shall comply with OSHA 1926.451 [General requirements, (b) Scaffold platform construction].

6.5.7 Supported Scaffolds

(1) General

(a) Scaffolds with a height to base width (including outrigger supports, if used) ratio

of more than four to one (4:1) shall be restrained from tipping by guying, tying, bracing, or equivalent means;

(b) Poles, legs, posts, frames, and uprights shall bear on base plates and mud sills or other adequate firm foundation;

(c) Footings shall be level, sound, rigid, and capable of supporting the loaded Scaffolding without settling or displacement;

(d) Poles, legs, posts, frames, and uprights shall be plumb and braced to prevent swaying and displacement;

(e) When moving platforms to the next level, the existing platform shall be left undisturbed until the new bearers or end frames have been set in place and braced prior to receiving the new platforms; and

(f) Further requirements to those specified above, shall comply with OSHA 1926.451 [General requirements, (c) Criteria for supported scaffolds].

(2) Tube and Coupler Scaffolds

(a) Transverse bracing forming an "X" across the width of the Scaffold shall be installed at the Scaffold ends and at least at every third set of posts horizontally (measured from only one end) and every fourth runner vertically;

(b) On straight run Scaffolds, longitudinal bracing across the inner and outer rows of posts shall be installed diagonally in both directions, and shall extend from the base of the end posts upward to the top of the Scaffold at approximately a 45 degree angle;

(c) Where conditions preclude the attachment of bracing to posts, bracing shall be attached to the runners as close to the post as possible;

(d) Bearers shall be installed transversely between posts, and when coupled to the posts, shall have the inboard coupler bear directly on the runner coupler. When the bearers are coupled to the runners, the couplers shall be as close to the posts as possible;

(e) Runners shall be installed along the length of the Scaffold, located on both the inside and outside posts at level;

(f) Couplers shall be of a structural metal, such as drop-forged steel, malleable iron, or structural grade aluminium, the use of grey cast iron is prohibited; and

(g) Further requirements to those specified above, shall comply with OSHA 1926.452 [Additional requirements applicable to specific types of scaffolds, (b) Tube and coupler scaffolds].

(3) Fabricated Frame Scaffolds

(a) Frames and panels shall be braced by cross, horizontal, or diagonal braces, or combination thereof, which secure vertical members together laterally. The cross braces shall be of such length as will automatically square and align vertical members so that the erected Scaffold is always plumb, level, and square. All brace connections shall be secured;

(b) Frames and panels shall be joined together vertically by coupling or stacking pins or equivalent means;

(c) Where uplift can occur, which would displace Scaffold end frames or panels, the frames or panels shall be locked together vertically by pins or equivalent means;

(d) Brackets used to support cantilevered loads shall:

(i) Be seated with side-brackets parallel to the frames and end-brackets at 90

degrees to the frames;

(ii) Not be bent or twisted from these positions; and

(iii) Be used only to support personnel, unless the Scaffold has been designed for other loads.

(e) Further requirements to those specified above, shall comply with OSHA 1926.452 [Additional requirements applicable to specific types of scaffolds, (c) Fabricated frame scaffolds].

6.5.8 Suspended Scaffolds

(1) General

(a) Suspended Scaffolds comprise Working Platforms suspended from upper levels for example with ropes, cables or chains and all necessary support framing, with or without Hoisting Equipment.

(b) Further requirements to those specified above for suspended Scaffolds, shall comply with:

(i) OSHA-1926.451 [General requirements]; and

(ii) OSHA 1926.452 [Additional requirements applicable to specific types of scaffolds].

(2) The following safety measures shall apply to interior hung Scaffolds which are suspended from roof structures, ceiling beams or other structural members:

(a) Capacity: of interior hung Scaffolds:

(i) Each Scaffold and Scaffold component except as provided in (ii) below shall be capable of supporting, without failure, its own weight and at least 4 times the maximum intended load applied or transmitted to it; and

(ii) Each suspension rope, including connecting hardware, used on non-adjustable suspension Scaffolds shall be capable of supporting, without failure, at least 6 times the maximum intended load applied or transmitted to that rope.

(b) Construction: of interior hung Scaffolds:

(i) Overhead supporting members (roof structure, ceiling beams, or other structural members) shall be inspected and checked for strength before the Scaffold is erected; and

(ii) Suspension ropes and cables shall be connected to the overhead supporting members by shackles, clips, thimbles, or other means that meet equivalent criteria (e.g., strength, durability).

(c) Inspection:

(i) Scaffolds shall be inspected before every work shift, and if any abnormality is found, the work shall be stopped; repairs made and the Scaffold re-inspected in accordance JSSS 6.5.5 (4); and

(ii) Wire ropes, chains, hooks and shackles used in the Scaffolds shall be inspected before every work shift in accordance with JSSS 5.4.1 [*Hoisting and Rigging Equipment*] If any abnormality is found, they shall be replaced.

(d) Prohibited activity

The use of any ladders or stepladders on suspended Scaffolds shall be prohibited.

6.5.9 Mobile Scaffolds

(1) Mobile Scaffolds shall be braced by cross, horizontal, or diagonal braces, or combination thereof, to prevent distortion or collapse of the Scaffold and to secure vertical members together laterally so as to automatically square and align the vertical members. Scaffolds shall be plumb, level, and squared. All brace connections shall be secured.

(2) Scaffold casters and wheels shall be locked with positive wheel and/or wheel and swivel locks, or equivalent means, to prevent movement of the Scaffold while the Scaffold is used in a stationary manner.

(3) Manual force used to move the Scaffold shall be applied as close to the base as practicable, but not more than 1.5 m above the supporting surface.

(4) Power systems used to propel mobile Scaffolds shall be designed for such use. Forklifts, trucks, similar motor vehicles or add-on motors shall not be used to propel Scaffolds unless the Scaffold is designed for such propulsion systems.

(5) Platforms shall not extend outward beyond the base supports of the Scaffold unless outrigger frames or equivalent devices are used to ensure stability.

(6) Where levelling of the Scaffold is necessary, screw jacks or equivalent means shall be used.

(7) Caster stems and wheel stems shall be pinned or otherwise secured in Scaffold legs or adjustment screws.

(8) Safety measures shall be applied before relocating the Scaffolds:

(a) Check the floor surface in advance to prevent the Scaffold from overturning due to any irregularities or obstructions;

(b) Move the Scaffold only after releasing brakes on all castors;

(c) Do not move the Scaffold when any workers or Goods are on the Scaffold;

(d) Ensure that there are no obstructions in the route including any overhead obstructions; and

(e) Do not allow any persons other than workers engaged in the relocation to enter the moving areas of the Scaffold or in the vicinity.

(9) Prohibited activity

Use of the Mobile Scaffolds shall be prohibited for the following:

(a) Use as a support for lifting dropping Goods, debris or waste materials or for dropping same;

(b) Use for the purpose of providing a barrier by covering with sheet material with the risk of collapse due to exposure to wind;

(c) Use for work of grit blasting or water jetting, where the reaction force can destabilise the Scaffold or workers on the Scaffold; and

(d) Use as floor to support mobile ladders, stepladders, trestles.

(10) Further requirements to those specified above shall comply with OSHA 1926.452 [Additional requirements applicable to specific types of scaffolds, (w) Mobile scaffolds].

6.5.10 Trestle Scaffolds

(1) Trestle Scaffolds can comprise:

(a) Special proprietary type free-standing trestle platforms; or

(b) Scaffold boards or lightweight staging boards supported on stepladders or other tripod type ladders.

(2) For requirements on Stepladders refer to JSSS 6.4.4 [*Ladders and Stepladders*].

(3) The following safety measures shall apply:

(a) The distance between the centre lines of the supporting stepladders shall not exceed 1.8m, width of the Scaffold boards shall be at least 45 cm;

(b) Scaffold boards shall not be placed any higher than the second highest rung or step of the ladder supporting the platform;

(c) If timber Scaffold boards are used, the overlap between boards shall be at least 20cm; and

(d) The length of projection of the platform from the end support shall be at least 10cm and not more than one-eighteenth of the length of the boards.

6.5.11 Mobile Elevating Work Platforms

This Clause specifies requirements for mobile elevating work platforms (also known as aerial lifts) including extendable boom platforms, articulating boom platforms, vertical towers and a combination of any such devices.

(1) The following safety measures shall apply for placing and operating mobile elevating work platforms:

(a) Only trained Contractor's Personnel, certified as such by the HSO shall be permitted to operate in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*];

(b) All operation shall be carried out in accordance with the manufacturer's written instructions;

(c) Mobile elevating work platforms shall never be used beyond the load limit recommended by the manufacturer, which shall also be clearly displayed on the equipment; and

(d) Safety devices shall not be switched off or isolated.

(2) Measures before operation of mobile elevating work platform:

(a) Designate operation as "Dangerous Work" and in accordance with JSSS 2.3 [*Prohibition of Entry*] demarcate working areas and take measures to prevent entry to unauthorised personnel;

(b) Place a Spotter, in accordance with JSSS 2.4 [*Spotters*] to guide the mobile elevating work platform and, in case of emergency to properly address the situation (e.g. to call help when the operator is incapacitated);

(c) Determine signals in accordance with JSSS 2.4.5 [*Signals*], and

(d) Determine in advance the appropriate working speed limit for the mobile elevating work platform according to the height of the Working Platform and the length of the boom, etc. and ensure that the operator never drives the equipment in excess of this limit.

(3) Measures at locating mobile elevating work platform:

(a) The parking brakes of vehicle shall be set;

(b) Wheel chocks shall be installed before using the mobile elevating work platforms on an incline, provided they can be safely installed;

(c) When outriggers are used, they shall be positioned on pads or a solid surface; and

(d) Lift controls shall be tested each day prior to use to determine that such controls are in safe working condition.

(4) Measures at operation on mobile elevating work platform:

(a) Workers shall always stand firmly on the floor of the basket/Working Platform, and shall not sit or climb on the edge of the basket or use planks, ladders, or other devices for a work position;

(b) Workers shall use PPE including PFRS;

(c) Workers shall be prohibited from taking dangerous actions such as moving from the working basket/Working Platform to neighbouring structure, standing on and working from handrail;

(d) When the mobile elevating work platform has both platform (upper) and lower controls, the upper controls shall be in or beside the platform within easy reach of the operator. Lower controls shall provide for overriding the upper controls. Controls shall be plainly marked as to their function. Lower level controls shall not be operated unless permission has been obtained from the worker in the lift, except in case of emergency;

(e) When leaving the operating position and when work is stopped the operator of the mobile elevating work platform shall:

(i) Put the Working Platform in the lowest position;

(ii) Stop the prime engine/motor; and

(iii) Apply the parking brake securely and ensure the equipment is securely parked.

(f) Stop work at a height of 2 m or more in case of adverse weather in accordance with JSSS 2.7 [*Adverse Weather Requirements*].

(5) Measures of moving mobile elevating work platform

(a) Mobile elevating work platform shall not be moved when the boom is elevated in a working position with workers in the basket, except for equipment which is specifically designed for this type of operation; and

(b) Before moving the mobile elevating work platform for travel, the boom(s) shall be inspected to see that it is properly cradled and outriggers are in stowed position.

(6) Inspection and maintenance of mobile elevating work platform

(a) Carry out inspection in accordance with JSSS 4.2.1 [*Requirements Generally*]; and

(b) Carry out maintenance, repair and installation/removal of the Working Platform in accordance with JSSS 4.2 [*Inspection, Maintenance and Repair*] and JSSS 4.3 [*Safety Requirements*].

(7) Prohibition of use for other purposes

Mobile elevating work platforms shall not be used for any purpose other than the intended original purpose and for example shall never be used for hoisting loads.

6.6 ELEVATED ACCESS STRUCTURES

6.6.1 General

This Section includes safety measures relating to Elevated Access Structures which act as act as temporary access, parking, working and/or storage areas which also accommodate Contractor's Equipment, Goods and temporary facilities as necessary to permit the construction operations to be performed from these structures on the underlying or adjacent working area(s) within the Site.

6.6.2 Design and Management ~~Generally~~

(1) The design, management, provision, safe use and safe removal of Elevated Access Structures shall comply with the requirements of JSSS 6.1.1 [*Design and Provision of Temporary Works Generally*].

(2) For related JSSS requirements, refer to the following and other related parts of JSSS including:

(a) JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*]; and

(b) JSSS 1.37 [*Design and Management of Temporary Works*].

(3) Erection and Removal of Elevated Access Structures

The Contractor shall:

(a) Enclose the working area where possible with temporary fences or barriers, prevent entry of any unauthorised personnel or prevent vessels from entering in the case of offshore or river, lake or marine works and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry];*

(b) Use of Measures to prevent Workers, Vehicles, Contractor's Equipment and Goods from falling;

The Contractor shall design and provide suitable measures to prevent workers falling including for example handrails specified in JSSS 2.5.5 [*Handrails*] to the perimeter of Elevated Access Structures.

The Contractor shall design and provide suitable measures to the perimeter of Elevated Access Structures prevent Vehicles, Contractor's Equipment and Goods falling including for example steel edge barriers and kerbs.

All edge barriers and kerbs shall be painted in black and yellow bands to show them as a hazard.

(c) Use of Measures to prevent collision with vessels;

For marine work or work in rivers or lakes, the Contractor shall provide all necessary warning signs, audible alarms, beacons and lighting and serve all notices to the relevant authorities as necessary to ensure that all shipping, boats and other vessels are aware of changes to navigation due to the presence of any Elevated Access Structures and that all risk of collision is avoided.

6.6.3 Further Safety Requirements

The Contractor shall take all necessary measures to ensure the safe provision, use and removal of Elevated Access Structures, including but not restricted to the following:

(1) Provide warning notices clearly showing the maximum Rated Capacity in clearly visible locations.

(2) Always respect the maximum Rated Capacity, taking account of all the persons/personnel, vehicles, Goods, etc. on the Elevated Access Structures.

(3) Provide any further signs containing user information or other mandatory usage requirements such as speed limits and markings all as necessary to demarcate roadways and walkways, working, storage, parking and other areas.

(4) Designate all work to and on any Elevated Access Structures and during use, as Dangerous Work and take all further measures that are required by JSSS 2.3 [*Prohibition of Entry*].

(5) Provide walkways in accordance with JSSS 6.4 [*Walkways*]

(6) Provide adequate lighting to ensure the safety of Contractor's Equipment, equipment of other parties, vehicles and persons in transit or whilst working.

(7) (for offshore work) Provide rescue and lifesaving equipment to be used in the event that any persons fall into the water, including a rescue boat and life belts or the like.

(8) Provide PFAS or PFRS to workers where appropriate including those engaged in the construction and removal of the Elevated Access Structures.

(9) Prevent any accident or collision by ensuring that all Contractor's Personnel that may be working on Elevated Access Structures and any Employer's personnel and other persons that may be present on such structures are fully informed about the work that may be in progress from time to time, including transportation and delivery of Goods and of the measures and any precautions that must be complied with.

(10) Provide relevant training in accordance with JSSS 1.20 [*Safety Induction Training*] to ensure the safety of all persons before they commence work on the Elevated Access Structures.

6.6.4 Inspection and Maintenance

Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the Contractor shall comply with the following:

(1) Every Elevated Access Structure shall be thoroughly examined by the HSO:

(a) Before it is brought into use;

(b) After any substantial alteration or extension;

(c) At least once in every 7 days; and

(d) Whenever it has been exposed to adverse climatic conditions, heavy seas, earthquake or other factors which may have affected its safety.

(2) A written record of the examination and regular inspections and details of any repair measures shall be prepared by the HSO.

(3) The examination and regular inspections shall include:

(a) Check if the Elevated Access Structure is provided and used in accordance with the Method Statement, Safety Plan and its design;

(b) Check items include:

(i) The structural condition of the Elevated Access Structure and of any deterioration, defect, damage or settlement;

(ii) Safety facilities including those for fall prevention are intact and fully operational; and

(iii) All other requirements of this Section are still being complied with.

(4) The Contractor shall carry out all necessary remedial and repair work necessary to rectify any deterioration, defect or damage and shall if necessary stop the use of the Elevated

Access Structure until such work has been properly completed, re-inspected and re-certified as safe for use by the HSO.

6.7 TEMPORARY ELECTRICAL INSTALLATIONS

6.7.1 General

(1) This Section contains safety requirements for the provision, use, relocation, repair and removal of temporary electrical power and lighting installations at the Site.

(2) Although the work in this Section is temporary, it shall be particularly noted that temporary electrical installations shall be designed, installed, inspected, tested, altered and removed by Contractor's Personnel that are qualified electricians, trained and certified for such operations in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*] and that follow strict procedures prepared by the Contractor and specified in the Method Statement and Safety Plan.

(3) The Contractor shall take precautions against the risk of death or injury from electricity during construction work. In particular, when executing refurbishment work in existing buildings where greater risk exists, the Contractor shall locate and indicate the types, positions and routes of all underground and concealed services with clearly visibly markings on ground, floor, wall and ceiling surfaces, and take all actions necessary to ensure construction safety in compliance with JSSS 3.1.2 [*Preparation and Work Planning*].

(4) The temporary electrical installations and all equipment used shall be safe, regularly inspected and properly maintained.

(5) Temporary electrical installations shall be removed immediately upon completion of the work for which they are used.

6.7.2 Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for Temporary Electrical Installations complying with OSHA 1926.405 [Wiring methods, components and equipment for general use].

6.7.3 General Safety Requirements

The Contractor shall avoid accidents to workers engaged on electrical works and also those workers who are not electricians but who are carrying out other works, by taking appropriate measures including the following:

(1) Understanding the system

(a) The Contractor shall ensure that Contractor's Personnel responsible for planning, managing or performing any part of the Works fully understand the danger in relation to electrical system on the Site or inside any existing building where any work is to be carried out, to ensure that the integrity of the electrical system is not compromised and all workers remain safe; and

(b) The Contractor shall ensure that relevant parts of existing electrical systems are isolated if the execution of any part of the Works may disturb or damage the existing electrical system and expose persons to electrical danger.

(2) Portable electrical equipment

(a) The Contractor shall ensure that tools, plugs and cables designed for domestic use are not used for construction works unless authorised by the HSO;

(b) The Contractor shall use cordless tools or other tools suitable for the Site conditions;

(c) Where cordless tools are not used, as a first preference the Contractor shall use cord and plug connected tools on a low voltage supply system with a maximum voltage to ground not exceeding 50V subject to the supply system at the Site;

(d) Where cordless tools or cord and plug connected tools with power supplies as described in (c) above are not available then, subject to authorisation by the HSO, the Contractor shall select cord and plug connected tools which are operated as stipulated below:

Under any of the following conditions, exposed non-current carrying metal parts of cord and plug connected tools shall be grounded:

(i) If in a hazardous (classified) location stipulated in OSHA 1926.407 [Hazardous (classified) locations];

(ii) If operated at over 150V to ground, except for guarded motors and metal frames of electrically heated appliances if the appliance frames are permanently and effectively insulated from ground;

(iii) If the equipment is one (1) of the types listed below:

- Hand held motor-operated tools;
- Cord and plug connected equipment used in damp or wet locations or by workers standing on the ground or on metal floors or working inside of metal tanks or boilers;
- Portable and mobile X-ray and associated equipment;
- Tools likely to be used in wet and/or conductive locations; and
- Portable hand lamps.

(3) GFCI (also referred to as RCD)

(a) Ensure that equipment, tools, leads, wires or cables are free of defect or damage, in particular when mains power supply is used;

(b) Use GFCI or RCD to detect any faults in the electrical system and rapidly switch off the supply; and

(c) GFCI or RCD shall be properly installed and enclosed; properly checked; treated with care; kept free of moisture and dirt; and protected against vibration and mechanical damage.

(4) Lighting systems

Protect cabling and bulbs against breakage. If a bulb breaks, the exposed filament may present a hazard. Have a system for checking bulbs regularly to maintain electrical safety and to keep the site well lit.

(5) Temporary electrical systems shall not be used in excess of intended loads or rated capacity whichever is less.

(6) Temporary electrical systems shall not be used for any purpose other than the intended original purpose.

(7) Regularly inspect power tools and take them out of service if they are damaged. Tools should be serviced by qualified electricians; makeshift repairs are prohibited.

6.7.4 Method Statement ~~for Temporary Electrical Installations~~

The Method Statement for temporary electrical installations (required by the Contract and JSSS 1.9 [*Contractor's Method Statements*] shall refer to the Laws of the Country and the relevant authority which supplies power to the Contractor in relation with relevant temporary electrical installations and shall show:

(1) Required Standards and voltages of electric wires and cables.

(2) Protective work for electric wires and cables.

(3) Electric diagram.

6.7.5 Responsible Personnel

(1) The Contractor shall post the name and contact information for the person in charge of managing and operating the temporary electrical installation.

(2) All other persons shall be prohibited from operating repairing or interfering with the temporary electrical installation unless otherwise instructed or approved by the HSO or person in change.

6.7.6 Inspection, Maintenance and Repair

The Contractor shall inspect the temporary electric facilities and perform all requisite maintenance, replacement and repair to ensure the continued and safe operation including the following:

(1) Daily inspection

(a) Prepare a daily inspection checklist of the temporary electric installations including the condition of associated buildings, enclosures, fences and the like;

(b) Inspect daily; and

(c) Record the inspection results.

(2) Periodical inspection

(a) Prepare periodical (weekly and monthly) inspection checklist including measurement of insulation resistance values of temporary electric installations and the operating status of protective devices against overcurrent, grounding fault, etc.;

(b) Inspect periodically; and

(c) Record the inspection results.

(3) Maintenance and repair

(a) As a result of inspection, carry any maintenance, repair or replacement if and as necessary;

(b) Stop operation of the temporary electric installations or affected parts thereof and prevent any further operation until maintenance, repair or replacement is completed; and

(c) Reinspect, the temporary electric installations or parts thereof, and after the HSO has declared same as safe for use, operation can then re-commence.

6.7.7 Safety Measures During the Work

The Contractor shall take the following safety measures when installing, moving, removing, repairing temporary electric facilities.

(1) Cabling/Wiring

(a) Carry out cabling/wiring work so that safety distances between cabling/wiring and any other cabling/wiring, posts, gantries, other structures, buildings, enclosures Contractor's Equipment, vehicles and persons are maintained;

(b) If appropriate separation distances cannot be maintained, enclose cabling/wiring in insulated ducts, conduit or trunking;

(c) Locate cabling/wiring where it does not obstruct other works; and

(d) Always enclose cabling/wiring in insulated ducts, conduit or trunking in working areas or Operational Areas to avoid any risk of contact, damage or injury.

(2) Switchgear, Panels and Switches

(a) Enclose switchgear, panels and switches in waterproof and lockable metal enclosures to suit the environmental conditions, all of which shall be grounded; and

(b) Fuses and circuit breakers shall be suitable for their use and load capacity.

(3) Power Receiving Equipment and Transformers

(a) Power receiving equipment, transformers and the like, shall be located in securely fenced or enclosed and locked compounds, enclosures or buildings from which entry by unauthorised persons shall be prohibited;

(b) Any work in such areas shall be designated as Dangerous Work and the provisions of JSSS 2.1.5 [*Further Requirements for Dangerous Work*] shall be applied; and

(c) All such places shall be clearly indicated as dangerous no entry areas with clear and obvious signage.

(4) Grounding (earthing)

(a) All temporary electric installations shall be grounded for each part to prevent the risk of electric shock due to electrical leakage; and

(b) Grounding electrodes shall be highly conductive such as copper.

(5) Relocation and Repair Work

(a) Relocation and repair work to or any work in the vicinity of temporary electrical installations shall only be performed after the power supply has been turned off, isolation has been confirmed, confirmation that temporary protective casings have been installed over existing cables and no electricity is measured by electricity detection;

(b) When re-energising temporary electric installations during or after any relocation or repair work, the Contractor shall ascertain in advance that there will be no electric shock to any persons engaged in the relocation or repair work of temporary electrical installations or any work nearby; and

(c) When installation, relocation or repair work of temporary electric installations is completed, the facilities shall be operated only after testing and inspection of the installation by the HSO and after the HSO has declared same as safe for use.

6.8 ELECTRIC AND GAS WELDING AND CUTTING

6.8.1 General

(1) This Section contains safety requirements for electric and gas, welding and cutting.

(2) Electric and Gas welding and cutting work shall be designated as Dangerous Work and the provisions of JSSS 2.1.5 [*Further Requirements for Dangerous Work*] shall be applied.

(3) Electric and Gas welding and cutting work shall only be performed, inspected and tested by Contractor's Personnel that are qualified welders, trained and certified for such operations in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*] and that follow strict procedures prepared by the Contractor and specified in the Method Statement and Safety Plan.

6.8.2 Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for Electric and Gas Welding and Cutting complying with the following standards:

(1) OSHA 1926.351 [Arc welding and cutting].

(2) OSHA 1926.351 [Gas welding and cutting].

6.8.3 Electric Welding and Cutting

The Contractor shall take the following measures for the electric welding and cutting:

(1) Check measures before operation:

(a) Automatic voltage reduction device for reducing no load voltage to prevent the shock hazard, is fitted and is functioning properly;

(b) Frame of welding machine is properly grounded;

(c) The ground resistance shall be sufficiently low for the proper function of GFCI or RCD;

(d) Grounding conductor is installed properly and working;

(e) There is no damage to welding cables;

(f) There is no damage to electrode holder, insulation of ground clamp or cable connections; and

(g) Carry out all such further checks that are required by the manufacturer's official maintenance and repair manual.

If any items are found to be missing or defective, the Contractor shall prohibit use until it has been repaired or replaced and the equipment has been inspected, tested and certified as safe for use by HSO, before it can be used.

(2) Measures to be adopted during operation:

(a) Prevent stray currents by securely fixing the ground cable with a ground clamp to a suitable ground, close to the work location;

(b) Use cables of the correct type and size and never use alternatives such as tools or reinforcing bars;

(c) When not working, remove electrode from holder and turn off the welding machine;

(d) Weld only in suitable environment and climatic conditions. Stop working outdoors during rainfall and take measures to prevent the welding machine, cables and accessories from getting wet;

(e) If any worker receives an electric shock, the Contractor shall stop the work immediately, identify the cause, prohibit use of the equipment until it has been repaired or replaced and the equipment has been inspected, tested and certified as safe for use by HSO, before it can be used;

(f) Ensure that workers wear appropriate PPE including personal face protectors for welding and protective gloves as specified in JSSS 2.9 [*PPE and First Aid*]; and

(g) Instruct all workers not to look directly at the electric arc with their naked eyes.

(3) Periodical inspection of welding machines and welding equipment:

(a) Electric welding and cutting equipment shall be inspected and tested periodically in accordance with JSSS 4.2 [*Inspection, Maintenance and Repair*] and JSSS 4.3 [*Safety Requirements*] and

(b) The voltage reduction device shall be regularly inspected and tested at least once every six (6) months.

6.8.4 Gas Welding and Cutting

The Contractor shall take the following measures for gas welding and cutting:

(1) Check measures before operation:

(a) Flashback arrestor to stop flame back-up into the equipment or gas supply line is installed;

(b) There is no damage to gas cylinders, regulators, flashback arrestor, hose bands, hoses, blow pipes, tip nozzles, and other accessories and equipment;

(c) Gas cylinders, regulators and caps and other relevant accessories and equipment have been inspected periodically and certified by HSO as safe for use; and

(d) Carry out all such further checks that are required by the manufacturer's official maintenance and repair manual.

If any items are found to be missing or defective, the Contractor shall prohibit use until it has been repaired or replaced and the equipment has been inspected, tested and certified as safe for use by HSO, before it can be used.

(2) Handling of gas welding and cutting equipment

(a) Gas hoses and gas weld sets, shall not be damaged or worn to prevent gas leakage;

(b) Gas weld sets shall be turned off when not in use and shall not be left lying around;

(c) Gas pressure regulators shall not be operated during cutting or welding operation;

(d) Connections between cylinders, gas hoses and gas weld sets shall be securely tightened with appropriate connectors;

(e) When tip nozzle overheats, flashback is likely to occur, therefore interrupt continuous working, from time to time and cool the nozzle by submerging in water whilst discharging oxygen at low pressure; and

(f) When finishing or interrupting work, completely close the container valves and vent gas in regulators.

(3) Handling of gas cylinders

Workers shall be trained to handle gas cylinders so that they are aware of the following requirements:

(a) Not to place gas cylinders:

(i) Where there is insufficient ventilation;

(ii) Near to fires, flames, heat sources, electrical sparks or grinding sparks; and

(iii) Near to Dangerous Goods or Hazardous Substances or near to Hazardous Areas.

(b) Handle gas cylinders with care and do not drop, throw or mishandle;

(c) Keep cylinders cool by shading and do not expose to direct sunlight;

(d) Keep cylinders standing during storage and use;

(e) Seal cylinders when transporting;

(f) Place compressed gas cylinders upright at all times except while cylinders are actually being hoisted or carried;

(g) Not to place gas cylinders in the vicinity of lightning conductors or grounding rods for electrical equipment;

(h) Mark all gas cylinders as either full or empty and separate them from each other in storage and during use; and

(i) When there is a risk of freezing, do not place gas cylinders in wet or humid places. When valves of cylinder or regulating valves freeze, thaw them out with hot water, do not flame or direct fire.

(4) Safety measures for gas welding and cutting work:

(a) Ensure that all internal and external working areas are fully ventilated;

(b) When checking for gas leakage from the gas welding or cutting equipment, use a liquid detergent or similar, never use flames or fire;

(c) Provide adequate fire extinguishing equipment near the working place, always maintained and certified, suitably labelled, available and positioned so that it can be used immediately when necessary;

(d) Remove oil and dust adhering to the valve of gas cylinders;

(e) Ignition and digestion shall be accomplished only with oxygen supply valve closed;

(f) Ensure that workers wear appropriate PPE including personal face protectors for welding and protective gloves as specified in JSSS 2.9 [*PPE and First Aid*]; and

(g) Instruct all workers not to look directly at the weld with their naked eyes.

(5) Periodical inspection of gas welding and cutting equipment.

Gas welding and cutting equipment shall be inspected and tested periodically in accordance with JSSS 4.2 [*Inspection, Maintenance and Repair*] and JSSS 4.3 [*Safety Requirements*].

6.8.5 Fire Prevention

The Contractor shall take all necessary measures to prevent fires caused by welding and cutting works, including:

(1) When welding or cutting work is carried out on/in containers previously filled with Dangerous Goods or Hazardous Material, the containers shall be thoroughly cleaned so that they are completely free from such Dangerous Goods or Hazardous Material before starting work.

(2) When welding or cutting work is carried out at a place where there is a risk of causing fire either to adjacent buildings or to Contractor's Equipment, Goods, debris, waste or other materials, then fire prevention measures shall be adopted. This may include moving all such Contractor's Equipment, Goods, debris, waste or other materials, from the

working area and taking other protective measures.

(3) Welding or cutting work shall not be conducted near Dangerous Goods or Hazardous Substances or in or near to Hazardous Areas.

(4) A sufficient number of fire extinguishers of appropriate types shall be provided, near the working place, always maintained and certified, suitably labelled, available and positioned so that they can be used immediately when necessary.

(5) Spotter(s) shall be provided at areas where welding or cutting work is taking place when there is risk of fire by the heat transmitted or sparks of welding or cutting, getting into walls, floors, ceilings and the like.

(6) When welding, cutting, or heating work is performed on walls, floors, and ceilings, since direct penetration of sparks or heat transfer may introduce a fire hazard to an adjacent area, the same precautions mentioned in this JSSS 6.8.5 shall be taken on the opposite side as are taken on the side on which the welding work is being performed.

CHAPTER 7: EXCAVATION WORKS

7.1 GENERAL

7.1.1 Scope

(1) This Chapter specifies the safety requirements for excavation works which include:

(a) Open-cut and all other types of surface excavation;

(b) Pits, trenches, basements and all other types of structural excavation;

(c) Excavation using all methods such as manual excavation and machine excavation;

(d) Excavation by Blasting (hereinafter referred to as "Blasting Works");

(e) All associated embankment filling, backfilling and disposal; and

(f) Earthwork Support.

and which are hereinafter collectively referred to as "Excavation Works".

(2) General requirements for example for Contractor's Equipment, Temporary Works and other related works all which apply to the work in this Chapter, are included in other Chapters of JSSS.

Additional particular requirements are contained in this Chapter.

7.1.2 Monitoring ~~of Excavation Works and Surroundings~~

(1) The Contractor shall monitor the Excavation Works and surroundings, to demonstrate that the Excavation Works are performing safely, to the designed limits and for the intended purpose.

(2) For more details, refer to JSSS 2.1.7 [*Monitoring and Records*].

7.2 PARTICULAR SAFETY MEASURES

7.2.1 General

(1) The Contractor shall plan all Excavation Works so that they can be executed in a safe and methodical manner.

(2) Unless otherwise specified in the Particular Safety Specification, the Contractor shall be responsible for choosing manual or machine excavation, selecting types of Contractor's Equipment, types of Temporary Works, Earthwork Support, spoil removal, storage and handling, controlling ground and surface water, forming embankments and cuttings and the like.

(3) Sloping sides and benching to sides of excavations shall comply with OSHA 1926.652 [Requirements for protective systems, (b) Design of sloping and benching systems], dependant on the dimensional constraints of the Site and the nature of the soil, hydraulic and geological conditions.

(4) The Contractor shall be responsible for preserving the structural integrity of all excavated sides and shall provide whatever Earthwork Support may be necessary to achieve this, in accordance with the requirements of JSSS 6.2 [*Earthwork Support*].

(5) The Contractor shall execute all Excavation Works and associated filling, backfilling and Earthwork Support without weakening any ground or causing any damage to Other Properties.

The Contractor shall also ensure the safety of all persons, whilst they are working in, under or adjacent to any excavation on or outside the Site.

The Contractor shall take all necessary measures to prevent the occurrence of any such weakening or damage to Other Properties and obtain the prior consent of the Engineer to

such measures before commencing relevant parts of the Excavation Works.

(6) If loose rock, boulders, trees and the like, are positioned above working areas and where there is any risk that these may pose a danger to workers, the HSO shall prohibit workers from entering the working areas and issue appropriate instructions including for example to:

(a) Provide protective overhead safety barriers or safety nets;

(b) Carefully remove loose rocks; and

(c) Provide (or improve existing) Earthwork Support to unstable areas.

7.2.2 Safety Measures Before Commencing Excavation Works

(1) The HSO shall inspect the Excavation Works area and surrounding areas before starting work each day and after adverse climatic conditions or earthquake as described in JSSS: 2.7 [*Adverse Weather Requirements*]. The inspection shall include the following areas and items:

(a) Potentially unsafe areas where there may be any risk of landslide;

(b) Loose rock or boulders which may be at risk of falling;

(c) Cracks in the Excavation Works area and the surrounding area;

(d) Changes in ground water level, surface or any spring water; and

(e) Deleterious effect due to freezing conditions.

(2) As a consequence of such inspections if the HSO identifies any outstanding risks, the HSO shall prohibit the continuation of any affected work, take necessary corrective measures and make any necessary amendment to the Safety Plan and instruct all Contractor's Personnel associated with such affected work of any revised safety measures before work is allowed to commence and continue in order to ensure their continued safety.

(3) Install facilities such as stairs and ramps as means of access or egress from the excavation site in accordance with JSSS 6.4.3 [*Vertical Access*].

(4) Provide support or protection for the underground services appropriately in accordance with JSSS 3 [*Existing Underground, Concealed and Overhead Services*], and take measures, according to the situation, such as indicating clearly the location and precautions of the underground service and providing protective fences for the services.

(5) Prevent workers and construction equipment/transport vehicles from falling at the excavation site, in accordance with JSSS 2.3 [*Prohibition of Entry*], install all necessary entry prevention facilities including fences, temporary enclosures, warning flags, "no entry" signs and the like and placing Spotters.

(6) Take the following measures when there is a risk of danger to third parties, workers, construction equipment, etc. by the fall of excavated soil/rock into the lower parts (bottom) of the excavation site:

(a) Identify dangerous locations, install entry prevention facilities such as fences, temporary enclosures, warning signs, etc. in accordance with JSSS 2.3 [*Prohibition of Entry*]; and

(b) Install protective fences that can catch falling rocks, etc.

(7) Preventive measures against falling rocks

(a) To protect workers from the dangers of falling of loose rocks and soils from the excavated surface, remove the loose rocks, etc. and take appropriate protective measures; and

(b) When there is a risk of falling of loose rocks/soils due to the excavation, take measures such as provision of earth retaining and protective net beforehand, and prohibiting workers from entering in the excavation site.

7.2.3 Safety Measures During Excavation Works

During the Excavation Works, the Contractor shall:

(1) Not place spoil, filling or Contractor's Equipment near the vertical edge of excavated surfaces.

(2) Stop the Excavation Works where a sign of ground collapse is identified during excavation, evacuate all Contractor's Personnel, implement all necessary safety measures, prohibit Contractor's Personnel from recommencing work until all safety measures have been taken.

(3) Backfill any temporary excavation area as soon as possible after the relevant work is completed.

(4) For places where open Excavation Works are performed, maintain the necessary illuminance to perform the work safely.

7.3 MANUAL EXCAVATION WORKS

7.3.1 General

During manual Excavation Works, the Contractor shall:

(1) Not undermine any excavation under and beyond the vertical cutting face.

(2) Not excavate under existing foundations.

(3) Maintain sufficient distance between workers.

(4) When breaking or removing loose rock, pay attention to the stability of the rock and the direction of its fall.

(5) When using a lever for removing rock, select equipment that has appropriate length and strength for the work.

7.4 MECHANICAL EXCAVATION WORKS

Refer to JSSS 4 [*Contractor's Equipment*].

7.5 TRENCHES, PITS AND OTHER TYPES OF STRUCTURAL EXCAVATION

7.5.1 General

The Contractor shall provide Earthwork Support in accordance with JSSS 6.2 [*Earthwork Support*] to prevent any danger to workers due to the collapse of excavated surfaces during the excavation of trenches, pits and other types of structural excavation.

7.5.2 Safety Measures ~~During Structural Excavation~~

(1) Materials and equipment to be used for Earthwork Support shall be appropriate for the width and depth of the excavation and free from damage or defects that might impair their proper function.

(2) Workers shall not be allowed to enter any excavation until Earthwork Support is installed prior to the work commencing.

(3) Excavation to a level greater than 60cm below the planned bottom level of support when the Earthwork Support itself is not yet installed shall not be allowed.

(4) If temporary removal of individual members of the Earthwork Support is necessary, safety measures shall be taken to ensure the safety of workers, such as installing temporary members to hold the loads imposed on the system.

(5) When removing Earthwork Support, the Contractor shall not allow anyone other than the workers engaged in the removal work to enter the area and the vicinity.

(6) The Contractor shall perform backfilling of any excavation in parallel with the removal of the Earthwork Support.

7.6 BLASTING WORKS

7.6.1 Scope

(1) This Section specifies safety measures for Blasting Works generally for the removal of rock that cannot be undertaken using conventional excavation techniques.

(2) Blasting Works for tunnelling is not included in the scope of this Chapter.

7.6.2 General Blasting Requirements

(1) Blasting shall only be permitted to be performed by the Contractor:

(a) When it is safe to do so and when there is no reasonably identifiable risk of injury or damage being caused to persons or property within or outside the Site;

(b) Where it is not specifically prohibited by the Particular Safety Specification; and

(c) When the Contractor has received the Engineer's approval or instruction.

(2) Blasting when approved, shall only be permitted at times which have been predetermined and agreed with the Engineer and any relevant authority.

(3) The Blasting Works plan shall be described in the relevant Method Statement.

(4) This Section applies particularly where there may be any risk of injury or damage to persons and property from flying debris within or outside the Site.

7.6.3 Blasting Noise

~~Noise levels measured at the boundary of the Site shall not exceed a sound pressure level of 85 dBA and/or a peak sound pressure level of 110 dB.~~

Noise from blasting in the Site shall be controlled in accordance with JSSS 2.1.4 [*Noise*].

コメントの追加 **[SS32]:** No. 66
The first sentence is deleted because the specification for noise in Hong Kong may be special due to works in crowded town.
NK agreed to delete it as there is no such regulation as Hong Kong.

7.6.4 Compliance Standards

(1) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for Blasting Works complying with BS 5607: Code of Practice for the Safe Use of Explosives in the Construction Industry.

(2) The Contractor shall obtain the necessary permits, licenses or approvals for Blasting Works and the handling and storage of Explosives associated therewith. The Employer, at the request of the Contractor, shall provide such reasonable assistance to allow the Contractor to obtain properly such permits, licenses or approvals.

7.6.5 Personnel for Blasting Works

(1) Further to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*], the Contractor shall assign the following personnel for Blasting Works:

(a) Explosives engineer; and

(b) Shotfirer(s).

(2) Responsibilities and requirement of personnel for Blasting Works.

(a) The Explosives engineer shall plan the Blasting Works, lead the Blasting Works at the Site and perform the safety management of the Blasting Works; and

(b) Shotfirer(s) shall perform safe handling, transportation and storage of Explosives, and perform Blasting Works and site safety management.

(3) Safety education and guidance

Further to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*], the Contractor shall ensure that the Explosives engineer and shotfirer(s) have sufficient knowledge of and are able to comply with the following:

(a) Nature of hazards associated with Blasting;

(b) Unsafe conditions and conduct in performing Blasting Works;

(c) Procedures for Blasting Works;

(d) Evacuation and return procedures for any evacuated workers and personnel;

(e) Safety measures when misfiring of Explosives occurs; and

(f) Actions for Emergency Response.

7.6.6 Blasting Safety Plan

The Contractor shall prepare a Blasting Safety Plan describing all required safety measures for Blasting Works in addition to the items prescribed in JSSS 1.7 [*Contractor's Safety Plans*] and including the following:

(1) Risk analysis and countermeasures.

(2) Safety measures for transportation, safekeeping, use and disposal of Explosives.

(3) Safety measures for Contractor's Personnel, Employer's Personnel and any other persons, the general public, neighbouring residents and building owners on or adjacent to the Site and who may be affected by the Blasting Works (hereinafter collectively referred to as "persons affected by the Blasting Works" in this Section).

(4) Determination of Exclusion Zone.

(5) Identification of affected areas, buildings, structures and property.

(6) Environmental and health compliance requirements including vibration, noise, fire, and the like.

(7) Environmental monitoring plan and methods to record the impact of Blasting on affected buildings, structures and property.

(8) Trial Blasting.

(9) Identification of the Explosives engineer and shotfirers to distinguish from other workers.

(10) Placement of Spotters.

(11) Method of notification of the start date and time of Blasting Works and the serving of notice immediately before commencement of Blasting Works to other persons affected by the Blasting Works.

(12) Evacuation method of all personnel from the Exclusion Zone before Blasting.

(13) Warning system at the time of Blasting.

(14) Procedures and methods for dealing with misfired Explosives (The plan for the treatment procedures for misfired Explosives shall be prepared by reference to BS 5607: Clause 10.5 Misfires).

(15) List of legal and administrative records.

7.6.7 Risk Prevention ~~of Workers and Neighbouring Residents~~

(1) Notice of Blasting

The Contractor shall notify all persons affected by the Blasting Works. of the planned schedule and start dates and times for Blasting Works. Such information shall be updated as necessary, immediately before the Blasting Works commence.

(2) Risk Prevention Measures

The Contractor shall take all necessary measures to prevent any injury or damage to all persons affected by the Blasting Works, including the following:

(a) Prohibition of overcharging with Explosives more than that specified in the Method Statement prepared based upon the trial Blasting;

(b) Prevention of scattering of flying rock and other debris;

(c) Prevention of collapse of surrounding rocks or ground areas;

(d) Demarcate the Exclusion Zone for Blasting Works and take necessary measures to prohibit any unauthorised persons from entering the Exclusion Zone by a system of signs, signals and Spotters in accordance with BS 5607: Clause 7.4.2 [Blast warning procedures] including the following:

(i) Provide audible warning sirens to warn of impending, current and completed Blasting operations; and

(ii) Place bulletin boards showing the Blasting time, siren code and other precautions at the boundary of the Dangerous Work area.

(e) Establish evacuation requirements, routes and assembly areas and inform all persons affected by the Blasting Works;

(f) Perform firing only after the Spotters have confirmed that all persons affected by the Blasting Works have been evacuated;

(g) Provide communication equipment between the shotfirer and the Spotter, maintain and test the equipment;

(h) Prohibit bringing into the Blasting areas any mobile phone that may affect adversely the electric detonator; and

(i) Unless otherwise specified in the Particular Safety Specification, perform Blasting Works only during the daytime.

7.6.8 Handling and Storage of Explosives

(1) Storage of Explosives

(a) The Explosive store to be constructed at the Site shall be a secure, substantial and fireproof building, environmentally controlled, locked, guarded and protected at all times and in accordance with the Laws of the Country;

(b) Appropriate numbers and types of personnel shall be assigned by the Contractor for safekeeping and security of the stored Explosives and any other materials;

(c) The Contractor shall maintain records of the types and quantities of all Explosives received and issued at the store, listing the date and time of receipt and issue and the names of all personnel concerned; and

(d) The Contractor shall submit the records to the Engineer when the Engineer requests.

For other storage requirements, the Contractor shall take necessary measures complying with BS 5607: Clause 9.3 [Storage].

(2) Transportation of Explosives

For transportation requirements, the Contractor shall take necessary measures complying

with BS 5607: Clause 9.4 [Transport of Explosives on Site].

(3) Quantity of Explosives at the Blasting site

(a) No Explosives shall be stored at the Blasting site;

(b) The quantity of Explosives to be transported from store to the Blasting site shall be limited to the estimated quantity of consumption for the Blasting; and

(c) Explosives not used on the day shall be returned to the Explosives store.

(4) Handling of Explosives

(a) Explosives shall be handled with extreme care ensuring that they are not hit, thrown or dropped;

(b) Containers for Explosives shall be solidly constructed from timber or non-conducting material and metals such as iron or foil must not be used on inner surfaces;

(c) Explosives and detonators shall be separately stored in lockable containers;

(d) The containers for Explosives shall protect against water ingress, impact damage; and

(e) Smoking, use of matches, lighters, flames, sparks and the like shall be prohibited in areas where Explosives are being transported, stored and handled, notice boards and warning signs shall be placed in suitable positions.

(5) Records of Blasting and Explosives

(a) The Shotfirer shall prepare daily work records showing the date and time of each Blasting operation, quantity of Explosives received, consumed, misfired and remaining, number of blast holes, charging method for the Blasting and treatment of misfired Explosives;

(b) The Explosives engineer shall check and countersign the Blasting Works records; and

(c) The Contractor shall submit the records to the Engineer when the Engineer requests.

(6) Notice to the Engineer

The Contractor shall notify the Engineer in writing as follows:

(a) Notification of delivery of Explosives to the store and from the store to the Site, shall each be given to the Engineer by no later than noon on the day preceding the scheduled date of the arrival of Explosives at the store and the delivery to the Site;

(b) Notification of intended Blasting Works shall be given to the Engineer by no later than noon on the day preceding the scheduled date of the Blasting operation; and

(c) Notification of the schedule for the following week's Blasting shall be given to the Engineer by no later than Friday morning of the preceding week.

7.6.9 Trial Blasting

The Contractor shall perform trial Blasting in accordance with the Blasting Safety Plan provided in JSSS 7.6.6 [*Blasting Safety Plan*] for the following purposes, and modify the said Blasting Safety Plan according to the results of the trial Blasting:

(1) Confirm the characteristics of rock and topography at the Blasting site that will affect the Blasting operations.

(2) Confirm the suitability of the planned Blasting method, Explosives amount, and scattering prevention and other protection measures.

(3) Confirm the safety of all persons affected by the Blasting Works.

(4) Confirm that the Contractor's criteria are adequate for the purpose of JSSS 7.6.10 [*Monitoring Impact of Blasting Works on Other Properties*].

The Contractor shall submit the trial Blasting reports with any consequent changes to the Blasting Safety Plan to the Engineer before proceeding with the Blasting Works.

7.6.10 Monitoring ~~Impact of Blasting Works on Other Properties~~

The Contractor shall comply with the requirements of JSSS 7.1.2 [*Monitoring of Excavation Works and Surroundings*].

7.6.11 Particular Safety Measures ~~for Blasting Works~~

(1) Identification of Blasting workers

Provide clear visible identification mark, uniforms or marked safety helmets to distinguish the Explosives engineer and shotfirer(s) engaged in Blasting Works from other workers.

(2) Drilling Work

(a) No drilling shall be allowed in the hole formed for previous Blasting; and

(b) If any misfired Explosives are found during the drilling operation, the drilling shall be stopped and the misfired Explosives shall be treated in accordance with the procedures planned in JSSS 7.6.6 [*Blasting Safety Plan*] and JSSS 7.6.12 [*Measures after Blasting*], (2) [*Treatment of misfired Explosives*].

(3) Explosives Charging

(a) Drilling operations shall not be permitted during charging of Explosives;

(b) Before charging, thoroughly clean the holes and do not leave any dust or debris; and

(c) Shock and friction such as the following, which can cause accidental initiation of the charges, shall be avoided:

(i) the over-vigorous use of stemming rods to force Explosives into a shot hole;

(ii) the use of drill rods or other metal tools in a shot hole containing Explosives;

(iii) vehicles running over Explosives and other hazards involving impact or concussion; and

For other safety measures for charging work, the Contractor shall comply with BS 5607: Clause 10 [Safety when using Explosives].

(4) Handling Detonators

(a) Measures for Blasting using electric detonators:

(i) Make sure electric detonator's leg wires shall be kept short-circuited until they are connected into the circuit for firing;

(ii) Check if shotfiring cables are not cut or damaged;

(iii) Make sure electric detonators shall be kept away from electric lighting supplies, power supplies and other electrical sources that may cause electric leakage;

(iv) Check if there are no missing or wrong wiring connections or mis-connection with previous blast wires;

(v) Make sure there are no stray electric currents;

(vi) Do not use electric detonators if there is any danger of electrical interference for example from radio-frequency radiation near radio communication facility or radar; and

(vii) Install a lightning detector near the Blasting area, stop Blasting Works when there is a risk of lightning strike, and evacuate workers to a safe place.

For other safety matters for Blasting with electric detonator, the Contractor shall comply with BS 5607: Clause 10.4.3 [*Electric detonators*].

(b) Measures for Blasting using non-electric detonators:

(i) Do not cut or damage the shock tube; and

(ii) Before firing, check the connections visually and make sure that there are no missing or previous wiring connections or wrong wiring connections.

(5) Measures in Ignition:

(a) The connection between the shotfiring apparatus and shotfiring cable shall be made just before ignition;

(b) Ignition shall be made at a safe place isolated and protected according to the degree of the blast; and

(c) The handle shall be removed from the shotfiring apparatus except when igniting.

7.6.12 Measures after Blasting

(1) Confirmation of safety of Blasting area after Blasting:

(a) No persons other than the shotfirer shall enter the Blasting site or its vicinity until the shotfirer has inspected the area and confirmed that it is safe to re-enter; and

(b) The shotfirer shall inspect the area and surrounding area of the Blasting site to check that there is no danger of falling or collapsing of ground and rocks or misfired Explosives.

(2) Treatment of misfired Explosives

If, after ignition, the loaded Explosives did not explode, or if it is difficult to confirm the explosion, the misfired Explosives shall be treated in accordance with the treatment of misfired Explosives in the Blasting Safety Plan, and BS 5607: Clause 10.5 [Misfires] including the following:

(a) Procedure of treatment of misfired Explosives;

The following treatment procedure of misfired Explosives shall be taken:

(i) Immediate remedial action;

(ii) Delayed remedial action;

(iii) Further attempt at detonation; and

(iv) Inspection to confirm complete detonation.

The details of the above actions are stipulated in succeeding (b) to (d).

(b) Immediate remedial action;

The following initial actions shall be taken by the shotfirer:

(i) Prohibit anyone other than the shotfirer and other authorised personnel from entering the Blasting site;

(ii) Entry to the Blasting site shall only be permitted after the elapsed time from the occurrence of misfire as specified in the Blasting Safety Plan;

(iii) Disconnect from the shotfiring apparatus any removable handle or key and the shotfiring cable, and short-circuit or ground the bare wires together;

(iv) When safe to do so, examine the cable and connections for any defects, and remedy any defect so found;

(v) Make a further attempt to fire the shot;

(vi) Report to the Explosives engineer for further instructions;

(vii) Do not collect any exposed Explosives before further action is taken;

(viii) Do not allow drilling or any other work to be carried out in the vicinity of the misfire until the misfire has been remedied, unless this is directly involved in the treatment of the misfire; and

(ix) Other actions specified in BS 5607: Clause 10.5.4.1 [Initial actions].

After the initial actions, the following initial remedial actions shall be taken by the shotfirer:

(i) When safe to do so, examine the cable and connections for any defects, and remedy any defect so found; and

(ii) Make a further attempt to fire the shot.

(c) Delayed remedial action and further attempt at detonation:

(i) After the immediate remedial action, when necessary, the delayed remedial action and further attempt at detonation shall be taken.

(ii) The delayed remedial action and further attempt at detonation should be safe removal of the stemming to allow re-priming, or drilling and firing relieving holes placed so as to work away the rock surrounding the stemming and charge of the misfired shot holes.

(iii) The action and attempt shall be taken in accordance with the Blasting Safety Plan, and BS 5607: Clauses 10.5.4.2 [Written instructions], 10.5.4.3 [Attempts to re-fire], 10.5.4.4 [Drilling relieving holes] and 10.5.5 [Drilling relieving holes].

(d) Inspection to confirm complete detonation;

After further attempt at detonation, inspection shall be made to confirm complete detonation. If any non or partial detonation is found, remedial measures shall be taken according to Figure-1 Procedure to remedy misfires in BS 5607: Clause 10.5.1 [General].

(e) Take appropriate steps to prevent theft of Explosives and detonators or their initiation by an unauthorised person; and

(f) The Contractor shall promptly notify the Engineer of any misfire event and the remedial actions.

CHAPTER 8: FOUNDATION PILING WORKS

8.1 GENERAL

8.1.1 Scope

(1) This Chapter specifies the safety requirements for piling works which include:

(a) Driven Piling;

(b) Cast-in-place Piling; and

(c) Hand-dug Piling

and which are hereinafter collectively referred to as "Foundation Piling Works".

(2) General requirements for Contractor's Equipment, Temporary Works and other related works all which apply to the work in this Chapter, are included in other Chapters of JSSS.

Additional particular requirements are contained in this Chapter.

8.2 PARTICULAR SAFETY MEASURES

8.2.1 General

(1) Foundation Piling Works and all operations connected therewith shall be designated as Dangerous Work and the Contractor shall enclose the working area with temporary fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry*].

(2) Unless otherwise specified in the Contract, the Contractor shall be responsible for selecting methods of working and types of Contractor's Equipment and Temporary Works suitable for the purpose in conformity with GC 4.10 [*Site Data*].

(3) In accordance with JSSS 6.2 [*Earthwork Support*] the Contractor shall be responsible for maintaining the structural integrity of the sides of all excavated or drilled pile excavations and shall provide whatever temporary or permanent Earthwork Support that may be necessary to achieve this.

(4) The Contractor shall execute all Piling Works without weakening any ground or causing any damage to Other Properties.

(5) The Contractor shall also ensure the safety of all persons, whilst they are working in, under or adjacent to any piling excavation on or outside the Site.

(6) The Contractor shall take all necessary measures to prevent the occurrence of any such weakening or damage to Other Properties and obtain the prior consent of the Engineer to such measures before commencing relevant parts of the Foundation Piling Works.

Such measures shall include the provision of permanent or temporary supports and reinforcing of foundations, structures, buildings, roads or paved areas or the like, either on or adjacent to the Site.

8.2.2 Safety Measures Before Commencement

The Contractor shall plan all Foundation Piling Works before commencement so that they are executed in a safe and methodical manner. The safety measures before commencement of the Works shall be as follows:

(1) The HSO shall inspect the Foundation Piling Works' working area and surrounding areas and ensure that all of the following is acceptable before allowing the Foundation Piling Works to commence:

(a) The ground is level and capable of supporting the loading of the Contractor's Equipment including any dynamic effect of the Foundation Piling Works and the load of any materials to be placed thereon;

(b) The area is clear of any obstructions; and

(c) The areas are properly drained and free from standing water.

If necessary, the Contractor shall improve the ground by stabilising, cleaning, draining, providing paving and/or placing steel decking and temporary piling and the like to provide a suitable, clean, dry and safe working area without causing any risk to the stability of Contractor's Equipment or materials.

8.2.3 Safety Measures for Transportation on Site - Appropriate Equipment and Vehicle

Piles and pile casings, liners, reinforcement cages and the like shall not be transported or relocated by use of pile driving or drilling machines. In all cases the Contractor shall use cranes accompanied or where necessary, trucks and flatbed trailers for the transportation or relocation.

8.2.4 Safety Measures for Driven Piling

The Contractor shall:

(1) Select correct rigging method and appropriate Rigging Equipment to suit the characteristics of the lifting or pile driving machine and the piles, so that piles are mishandled or dropped.

(2) Keep workers other than those directly engaged in the driving operations away from the direct working location when driving operations are taking place.

(3) Provide a lifeline to fix PFAS on the lead when the worker works on the lead of pile driving machine in addition to the fall prevention measures stipulated in JSSS 2.5 [*Fall Prevention*].

8.2.5 Safety Measures for Cast-in-place Piling

When any Cast-in-place Piling Works are adopted, the Contractor shall take appropriate safety measures taking account of features of different methods of work, in particular:

(1) Pile Excavation Works using All-Casing Piling Method:

(a) Keep workers other than those directly engaged in the piling operations away from the pile excavation machine while installing and removing the casing and operating the drop hammer grab. Before any worker is allowed to access the casing or equipment whilst the hammer grab is being operated, ensure that the hammer grab is secured in the casing; and

(b) When any worker needs to enter the casing, confirm that there is no danger in accordance with JSSS 2.1.5 [*Further Requirements for Dangerous Work*].

(2) Pile Excavation Works for Reverse Circulation Bored Piling Method:

(a) When adding or removing drill rods, ensure that a Spotter is present to signal the operator of the drilling machine so that the hands and fingers of workers do not get caught in the work;

(b) Maintain the water level and concentration level of slurry (bentonite solution) in the drilled hole as planned in the Method Statement and prepare for addition or discharge of slurry, consequent to any fluctuation; and

(c) When providing a mud creation pit or a mud discharge pit, take measures to prevent workers from falling into such pits by providing barriers and signage.

(3) Pile Excavation Works for Auger Piling Method:

(a) To prevent overturn of drilling or auger equipment, consider the weight of excavated material in the drilling bucket or on the auger during operation; and

(b) Keep workers other than those directly engaged in the drilling works, away from the drill or auger to prevent injury through splashing or falling of mud or earth or

through contact with drill or auger.

(4) Placement of Concrete

(a) Reinforcement cages shall be designed, manufactured and hoisted into place so that they do not deform;

(b) Provide secure rigging slings and welded metal fixings to ensure that reinforcement cages are secure and do not slip or drop off the Hoisting Equipment;

(c) Tremie pipes shall be treated in the same manner so that they are secure and do not slip or drop off the Hoisting Equipment;

(d) Provide secure Rigging Equipment and operate hoisting to ensure that reinforcement cages and tremie pipes do not slip or drop off from the Hoisting Equipment in accordance with the Method Statement and Safety Plan; and

(e) When handling reinforcement cages and tremie pipes, ensure that a Spotter is present to signal the operator of the machine so that the hands and fingers of workers do not get caught in the work.

8.2.6 Safety Measures for Hand-dug Piling

Unless otherwise specified in the Particular Safety Specification, the Contractor shall comply with the requirements of the following (1) to (3):

(1) Hand-dug Piling shall not be adopted by the Contractor in ground with unfavourable conditions such as:

(a) High ground water levels;

(b) Weak geological structure including the possible presence of voids or caverns;

(c) Possible existence of Hazardous Substances;

(d) Containing loose fill in depths exceeding 10 m;

(e) In areas with history of deep-seated ground movement;

(f) Close proximity to water or sewage tunnels; and

(g) Close proximity to shallow foundations.

(2) Hand-dug Piling may for example be adopted by the Contractor in the following situations where there are no unfavourable conditions:

(a) Steeply-sloping sites with pile depths less than 25 m in depth in soil;

(b) Sites with difficult access or insufficient working room where it may be impractical or unsafe to use mechanical plant; and

(c) Where noise, vibration or damage may be caused by driven or bored piling and which must be avoided.

(3) Hand-dug Piling shall:

(a) Be not less than 2 m diameter;

(b) Be not more than 25m deep; and

(c) Have continuous shaft lining.

(4) Access/Exit Facilities

The Contractor shall:

(a) Provide safe and efficient access, egress and emergency exit facilities in the shaft for workers;

(b) Provide vertical ladders, securely anchored to framework or shaft lining and complete with a ladder safety system;

(c) Provide a landing rest platform every 5 m, when the length of any ladder exceeds 10 m;

(d) Ensure that the upper end of vertical ladders projects at least 1m above the ground and any landing rest platforms;

(e) Provide appropriate and adequate pumps to remove all water from the base of the shafts; and

(f) Take measures to prevent any accidents involving workers with the spoil removal containers and any other equipment particularly throughout the bucket hoisting and descending operations.

(5) Ladder Safety System

(a) A ladder safety system shall be provided to eliminate the risk of injury to any worker falling off the ladder; and

(b) The ladder safety system shall comprise a carrier, safety sleeve, lanyard, connectors, and body harness and all workers shall be trained in its use.

(6) Communication and Signalling Measures

(a) Signals for delivering materials and equipment or discharging excavated materials to and down or from the shaft shall be determined in advance and all workers shall be trained in their use;

(b) Signals and evacuation methods during emergencies shall also be determined in advance and all workers shall be trained in their use with regular evacuation training; and

(c) Where considered necessary by the HSO handheld radios shall be provided to the Operation Leader working at the base of the shaft and a Spotter at the ground level for all communications.

(7) Environmental Measures

(a) Ensure a continuous, adequate and safe air supply to workers located at the bottom of the shaft;

(b) Provide monitoring equipment, set up alarms and evacuate workers if air quality deteriorates and keep records in accordance with JSSS 2.1. [*Work Environment*]; and

(c) Provide adequate temporary lighting.

(8) Measures before Commencing Work

Check the condition of the excavated ground surface in the shaft and whether there is any abnormality in the shaft lining.

(9) Measures during Execution of the Work

(a) When workers are in the shaft, assign a Spotter at ground level and located within direct view at the upper edge of the shaft;

(b) Minimise the depth of each stage of excavation;

(c) Avoid introducing new teams of workers or changing over teams until each stage of excavation is completed and temporary support or shaft lining has been installed;

(d) Provide immediate temporary support for the excavated faces prior to casting the

liner;

(e) Providing reinforcement to the concrete liner;

(f) Providing drainage to each stage of excavation with relief wells, sumps and pumping as appropriate;

(g) Stop the work and evacuate workers when abnormal water inflow occurs in the shaft and resume work only after taking countermeasures and confirming the safety of the Site and the effectiveness of the measures;

(h) Pay constant attention to any changes in soil types, properties, etc. and if any abnormality is identified at the excavated surface during work or in the shaft lining, immediately stop the work, evacuate workers and take appropriate remedial measures, resume the work only after confirming that there is no further risk; and

(i) Ensure nothing is dropped into the shaft that may injure workers.

8.2.7 Monitoring ~~Impact of Foundation Piling Works on Other Properties~~

The Contractor shall comply with the requirements JSSS 2.1.7 [*Monitoring and Records*].

CHAPTER 9: CONCRETE WORKS

9.1 GENERAL

9.1.1 Scope

(1) This Chapter specifies the safety requirements for concrete works which include:

(a) Cast-in place (poured or pumped) concrete;

(b) Reinforcement (reinforcing bar and fabric reinforcement);

(c) Formwork (including associated Falsework);

and which are hereinafter collectively referred to as “Concrete Works”.

(2) General safety requirements, covering for example Contractor’s Equipment including stone crushing plants and screening equipment, concrete batching plants, Temporary Works and other related matters are described in other Chapters of JSSS.

Additional particular requirements are contained in this Chapter.

9.1.2 Safety Plan and Instructions to Workers

Prepare a Safety Plan describing the safety requirements for Concrete Works and inform all workers engaged in the Concrete Works of the content and requirements. The Safety Plan shall pay due care to the workers’ health matters (e.g. back injury) in relation to handling of reinforcement, Formwork panels or other heavy items, and include necessary preventive measures (e.g. using appropriate Contractor’s Equipment, assigning sufficient number of workers).

9.2 PARTICULAR SAFETY MEASURES

The following safety requirements are additional to the general requirements described in other Chapters.

9.2.1 Safety Measures at Planning Stage

(1) The Contractor shall plan all Concrete Works so that they are executed in a safe and methodical manner.

(2) The Contractor shall plan the method of placing cast-in-place concrete and carry out the design and construction of Formwork and Falsework to take account of uneven and excessive impact force and different or asymmetrical loads, thicknesses and pressures in certain areas during concrete placement to avoid deformation beyond allowable tolerances specified in the Contract, any damage or collapse of Formwork and Falsework and show all details in the Method Statement and Safety Plan.

(3) The Contractor shall provide PPE such as rubber gloves, face masks and goggles to the workers when spraying concrete form release agents to prevent chemical injury, and where there is a possibility that release agent may splash on the third parties, take measures such as establishing exclusion zone with temporary barriers and locate Spotters to prevent those persons from entering the area.

9.2.2 Safety Measures for Placement

The Contractor shall:

(1) Designate concrete placement works (including all pumping and hoisting of concrete) as Dangerous Work, enclose the immediate working area with temporary signs and fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry*].

(2) Inspect all reinforcement, Formwork and Falsework before and during concrete placement. If any abnormality is discovered, stop the placement works and evacuate the

workers immediately, carry out repairs and reinspect before resuming.

(3) Place the concrete in accordance with the Method Statement and avoid uneven and excessive impact force and different or asymmetrical thicknesses and pressures in certain areas during concrete placement Additional materials shall be stored at the concrete placing site for use to reinforce Falsework in case of occurrence of their local deformation.

9.2.3 Safety Measures for Placement by Pumping

The Contractor shall take the following safety measures for delivery of cast-in-place concrete with the use of concrete pumps:

(1) Inspect the condition of concrete pump delivery pipes, end hoses and all connections, ensure that they are free from defects and blockage, check that all joints and connections are secure and free from leakage before and during concrete placement works.

(2) Ensure that all delivery pipes, end hoses and other system components are all correctly pressure rated and capable of withstanding the maximum pump pressure.

(3) Maintain a safe separation distance between the delivery pipe, end hose and boom and any existing Overhead Services as required by JSSS 3 [*Existing Underground, Concealed and Overhead Services*], Table 3.2.1: Safe Separation Distances.

(4) Maintain a safe separation distance from any obstructions (Contractor's Equipment, buildings, etc.) and avoid any risk of hitting or touching any obstructions with the pumping equipment, delivery pipes, end hoses or boom.

(5) Check the ground condition, ensure a firm, stable and horizontal working base at all times and position pumping equipment and ready-mixed concrete trucks at a safe distance from the edge of any excavations, drop or slope to protect against any slippage or fall of equipment and ready-mixed concrete trucks or collapse of ground.

(6) Fully extend outriggers and ensure stability of pumping equipment and ready-mixed concrete trucks at all times.

(7) Arrange proper communications and signals before starting the placement between workers, Spotters and operators of equipment and ready-mixed concrete trucks and ensure there is a Spotter at the point of placement.

(8) Never allow workers to stand between ready-mixed concrete trucks and pumps when ready-mixed concrete trucks are reversing.

(9) Ensure that workers are out of the path of the boom when moving the boom.

(10) If a blockage or clogging occurs inside the pipeline during the pour, stop pumping immediately and instruct workers to move to a safe position before attempting to remove the blockage or clogging. The pipeline shall be opened after releasing the pressure inside in accordance with the predetermined procedure.

(11) Ensure that hoppers and chutes are securely fixed and that workers are aware of the method of operation and safe use.

(12) Ensure that the delivery pipe and hose at the end of the concreting pump booms are securely connected so that they do not fall or become detached.

(13) Prohibit workers from working on the hopper screen of the concrete pump, remove obstructions and foreign materials in the hopper only after stopping the agitating blade and applying lockout/tagout procedures.

(14) Prohibit workers from entering in front of and below the outlet of concrete pump delivery pipes and end hoses to prevent workers being struck by pipes or flailing hoses.

9.2.4 Safety Measures for Ready-Mixed Concrete Trucks

The Contractor shall take the following measures for the ready-mixed concrete trucks in the transportation and delivery of cast-in-place concrete.

(1) Ensure that drivers are aware of and take due account of the heavy load and high centre of gravity of loaded ready-mixed concrete trucks during delivery and discharge to maintain safety and prevent overturning.

(2) Ensure that workers do not come into contact with and/or become entangled with the rotating drum and other moving parts of ready-mixed concrete trucks and that they are prevented from looking into the drum.

9.2.5 Safety Measures for Use of Concrete Buckets

The Contractor shall take the following measures when using concrete buckets for hoisting and placement of cast-in-place concrete:

(1) Comply with JSSS 5.2.5 [*General Safety Measures for Hoisting Operations*] for selection of proper Hoisting Equipment and Rigging Equipment, arrangement of proper communication tools, signals and placement of Spotters.

(2) Ensure that the movable gate is locked before hoisting and is only operated by a skilled worker when it is opened for discharge.

(3) Take measures to stabilise the bucket during hoisting and prevent any uncontrolled swinging. Prohibit workers from pushing and pulling bracket except for minor adjustment of location of the bucket for discharging concrete.

(4) Prevent any persons or workers from entering the places below bucket.

(5) Discharge the concrete slowly and in a controlled manner to prevent the bucket from rebounding after discharge.

9.2.6 Safety Measures for Use of Concrete Vibrators

The Contractor shall take the following measures when using concrete vibrators for compacting of cast-in-place concrete:

(1) Take all necessary measures to prevent electric shock, complying with JSSS 4.3.12 [*Additional Requirements for Electric Powered Equipment*].

(2) To prevent vibration injury to workers, provide anti-vibration gloves and ensure that they are properly used.

9.3 REINFORCEMENT

9.3.1 Safety Measures at Planning Stage

The Contractor shall:

(1) Prepare a Safety Plan, Method Statement and fixing and placing drawings of reinforcement describing the method of cutting, bending and fixing and showing the types and positioning of supports, ties and bracing necessary to support and rigidly secure the reinforcement and to prevent any movement or collapse.

(2) Inform all relevant workers of the content of the Safety Plan, Method Statement and assembly drawings.

9.3.2 Safety Measures at Cutting, Bending, Transporting, Fixing and Placing Stage

The Contractor shall take the following measures during cutting, bending, transporting, fixing and placing of reinforcement:

(1) Cutting and Bending:

(a) Designate the work as Dangerous Work, enclose the immediate working area with

temporary signs and fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry*];

(b) Maintain the working area in a safe, organised, uncluttered and clean condition at all times, avoid excessive storage by retaining sufficient quantities of reinforcement for immediate use, locate equipment in known positions, prevent any fall or dropping of material, equipment and tools, remove offcuts to a separate area and ensure the area is safe and that the risk of workers falling or tripping is avoided; and

(c) Maintain stored reinforcement material in a safe and secure manner and prevent collapse or fall by providing adequate restraints.

(2) Transporting:

(a) Ensure that Scaffolding and any other temporary structures on which reinforcement is to be temporarily placed is capable of supporting the load, ensure that the load is distributed safely and that it does not cause any obstruction to the passage of other workers;

(b) Ensure that reinforcing bar is lifted and suspended horizontally to prevent any slippage during Hoisting Operations and also that it is bundled safely and securely tied to prevent any reinforcing bars from sliding out;

In principle, hoist the bundle of reinforcing bars, keeping them horizontal and maintaining the balance by using two rigging slings; and

(c) When transporting to the working location use flatbed trailers or truck, ensure that the trailer or truck is of sufficient length to avoid any overhang of reinforcing bars and provide appropriate warning signs and lighting on reinforcing bars if necessary in accordance with the local regulations to avoid collision with other vehicles, persons and workers.

(3) Fixing and Placing:

(a) Prepare proper temporary access to and support for fixing and placing reinforcement in position;

(b) Prevent any risk of fall and also any distortion or weakening of reinforcement by prohibiting workers from standing, walking or climbing on such reinforcement and where necessary provide safe temporary boarded walkways for workers use;

(c) Ensure that fixing and placing is in exact accordance with the fixing and placing drawings and that the correct types and positioning of supports, ties and bracing is maintained to properly support and rigidly secure the reinforcement and prevent undue movement or collapse;

(d) When there is any danger of reinforcement falling or collapsing during fixing and placing in wind and rain, stop the fixing and placing work. After conditions improve, inspect the reinforcement and take measures to correct any abnormality before continuing with fixing and placing;

(e) Prohibit working concurrently at levels where any other worker is working underneath in accordance with JSSS 2.6.7 [*Working Above or Below Other Persons*]; and

(f) Provide temporary protection caps to exposed ends of reinforcing bars to prevent injury to workers.

9.4 FORMWORK (INCLUDING FALSEWORK)

9.4.1 General

Any reference to "Formwork" in this Section shall also be deemed to include reference to the associated Falsework for that Formwork.

9.4.2 Safety Measures at Planning Stage

The Contractor shall:

(1) Design the Formwork and manage its provision, use and removal in accordance with JSSS 1.37 [*Design and Management of Temporary Works*] and the further requirements of JSSS 6.1 [*General Requirements of Temporary Works*].

(2) Prepare a Safety Plan, Method Statement and design drawings of Formwork describing the method of fabrication, assembly, erection and removal and showing details of all materials, components, types and positioning of supports, ties and bracing necessary to create a rigid and secure temporary support structure for the concrete, reinforcement and workers and to prevent any movement or collapse.

(3) Inform all relevant workers of the content of the Safety Plan, Method Statement and design drawings.

9.4.3 Safety Measures at Fabrication and Assembly Stage

The Contractor shall take the following measures during fabricating, transporting and assembling of Formwork:

(1) Designate the work as Dangerous Work, enclose the immediate working area with temporary signs and fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry*].

(2) Maintain the working area and storage area in a safe, organised, uncluttered and clean condition at all times, avoid excessive storage by retaining sufficient quantities of material for immediate use, locate equipment in predetermined places, prevent any fall or dropping of material, equipment and tools, remove offcuts to a designated area.

(3) Ensure that the Formwork is free from cracks, defects and deformation.

(4) Ensure that Scaffolding and any other temporary structures on which Formwork is to be temporarily placed is capable of supporting the load, that the load is distributed evenly and within the allowable stress of Formwork.

(5) During any Hoisting Operations, ensure that all necessary measures are taken to prevent Formwork being affected by wind and that any risk of collision and consequent injury and damage is avoided.

9.4.4 Safety Measures During Dismantling and Removal Stage

(1) Ensure that Formwork is only dismantled when so instructed or approved in writing by the HSO.

(2) After dismantling, stack Formwork panels horizontally to avoid overturning due to strong wind or applied loadings; and

(3) Any protruding nails, wires, projecting members and splinters shall be removed or bent flat to avoid injury to workers and other persons.

CHAPTER 10: DIVING WORKS

10.1 GENERAL

10.1.1 Scope

This Chapter specifies the safety requirements for Diving Operations which shall include Surface-Supplied Air Diving and SCUBA Diving and which are hereinafter collectively referred to as “Diving Works”.

Saturation diving and mixed-gas diving are not included.

10.1.2 Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Chapter or relevant to the subject of this Chapter and which are not fully covered by JSSS, the Contractor shall take necessary measures for Diving Works complying with OSHA 1910 Subpart T [Commercial Diving Operations] for Surface-Supplied Air Diving and SCUBA Diving (excluding saturation and mixed-gas diving).

10.2 SAFETY PLANS

10.2.1 General Requirements ~~for the Safety Plans for Diving Works~~

The Contractor shall prepare the following Safety Plans for the Diving Works in compliance with and in addition to the requirements of with JSSS 1.7 [*Contractor's Safety Plans*].

(1) Bid Stage Safety Plan for Diving Works.

(2) Baseline Safety Plan for Diving Works.

(3) Particular Safety Plans for Diving Works.

(4) Pre-dive Safety Plan for Diving Operations.

10.2.2 Bid Stage Safety Plan ~~for Diving Works~~

In compliance with JSSS 1.7.6 [*Bid Stage Safety Plan*], the Bid Stage Safety Plan for Diving Works shall include an outline plan indicating the Contractor's operational procedures for each diving mode to be used in the Works This shall be in sufficient detail to give an understanding of the Contractor's intentions regarding the diving safety procedures that the Contractor intends to implement.

10.2.3 Baseline Safety Plan ~~for Diving Works~~

(1) In compliance with JSSS 1.7.7 [*Baseline Safety Plan*], the Baseline Safety Plan for Diving Works shall be a development of the Bid Stage Safety Plan and shall include detailed safety procedures and standard checklists to apply to all Diving Operations, equipment procedures, and emergency procedures (at a minimum covering fire, equipment malfunction or failure, adverse environmental conditions and medical illness and injury).

~~(2) The HSO shall review the Baseline Safety Plan to determine if it is correct and compliant with the requirements of OSHA and JSSS.~~

(3) A copy of the Baseline Safety Plan together with a copy of the OSHA standard and the Contractor's policies for implementing the requirements of OSHA (from the Bid Stage Plan) shall be made available at the dive location to each Dive Team member and explained to the Dive Team by the HSO and DPIC.

10.2.4 Particular Safety Plans ~~for Diving Works~~

(1) In compliance with JSSS 1.7.8 [*Particular Safety Plans*], the Particular Safety Plans shall contain all further information specific to Diving Works not covered by the foregoing Bid Stage and Baseline Safety Plans together with all supplemental information obtained during pre-dive planning and assessment, as necessary to comply with the requirements

コメントの追加 **[SS33]:** No. 69
JICA commented this proposal is tentatively accepted.
JICA will consult these plans with specialist company for diving works.
NK will leave them as they are.

コメントの追加 **[SS34]:** JICA commented (2) shall be deleted because it is strange foe the HSO to review BSP.
NK will delete (2).

of OSHA in particular OSHA 1910.421 [Pre-dive procedures] for all Diving Works.

(2) The Particular Safety Plans shall be prepared for the basis of the Pre-dive Safety Plan for each Diving Operation to be carried out in any one (1) day.

(3) The Particular Safety Plans shall include the following for example, however, the plan be modified to be indicative for the use of the Pre-dive Safety Plan:

(a) Safety procedures and checklists for each Diving Operation;

(b) Name of each Dive Team member, buddy diver assignments, individual work assignment and responsibility and confirmation from the DPIC that they each comply with all diving health and safety requirements and are therefore approved to work on the Diving Operation;

(c) The planned dive profile for each Diver showing their maximum bottom time and ascent rate with decompression stages and times, taking account of repetitive dives;

(d) Description of all diving equipment, diving gases and consumables, PPE, procedures for their use and signed checklists to confirm compliance;

(e) Description of the workboat and workboat facilities, together with information on the location of the workboat in relation to the dive site, and procedures for the use and operation of the workboat during Diving Operations, any surface hazards and any restriction in operation due to surface traffic conditions;

(f) Description of all other Contractor's Equipment, tools and consumables for the assigned work tasks, procedures for their use and checklists;

(g) The arrangements at the Site of the Diving Works for emergency recompression/decompression and the safe transport of any Diver for treatment;

(h) The climatic, river, lake, marine, natural and physical conditions that are likely to be encountered during any Diving Operation and the procedures for commencement, continuation or stopping of any Diving Operation following any change in these conditions in accordance with JSSS 10.3 [*Climatic, Marine, Natural and Physical Conditions*];

(i) Communication systems and procedures for communications:

(i) between Divers;

(ii) between Divers and the workboat; and

(iii) Between the work boat and the relevant authorities.

(j) Any further information and instructions to be given to the Divers, support assistants and other workers related with the Diving Operations and the working methods and safety measures.

(4) The Particular Safety Plan shall be prepared by the DPIC or another Diver that has the qualification, experience and capability deemed sufficient by the HSO.

(5) The Particular Safety Plan shall be reviewed and approved by the HSO.

(6) The content of the Particular-Safety Plan shall be explained to all Dive Team members during the briefing by the HSO or DPIC in accordance with OSHA 1910.421(f) [Employee briefing].

(7) If considered necessary by either the HSO or DPIC, individual Dive Team members shall be given additional training and testing.

(8) A copy of the Particular Safety Plan shall be made available at the dive location to each Dive Team member.

コメントの追加 [SS35]: JICA asked if "of" is necessary before OSHA.

コメントの追加 [SS36]: No. 70
JICA commented (3) cannot understandable, so request to change it. If this states the relation with Pre-dive plan, it should be modified, or delete it because there is stipulation in 10.2.5 (2).
NK: Please review JICA comment and modifythis sentence.

コメントの追加 [SS37]: JICA commented (4) and (5) should be modifies as requested in 1.7. The PSS is the document to be prepared by the HSO getting assistance of DPCI and divers and submitted for the Engineer's review.
NK: Please modify (4) and (5) following JICA's comment above.

10.2.5 Pre-dive Safety Plan for Diving Operations

The Contractor shall prepare a Pre-dive Safety Plan for each Diving Operation as follows:

(1) To contain information specific to the Diving Operation to be carried out in a day to secure safety of Diving Operation, in accordance with OSHA 1910.421 [Pre-dive procedures].

(2) To describe the items given in the above JSSS 10.2.4 ~~(1)~~ (3) specifically for the particular Diving Operation.

(3) To be used for briefing the Dive team.

(4) To be prepared by DPIC or another Diver that has qualification, experience and capability deemed sufficient by the HSO.

(5) To be submitted to the HSO by the day preceding the scheduled date of the Diving Operation for his review and approval.

(6) To be available at the dive location to each Dive Team member.

10.3 CLIMATIC, MARINE, NATURAL AND PHYSICAL CONDITIONS

10.3.1 General

(1) The Contractor shall compile relevant information from statistical records, recent and current forecasts of conditions which may be encountered in support of the Particular Safety Plan and shall establish criteria and controls for commencement, continuation or stopping of any Diving Operation due to such conditions.

(2) The Baseline Safety Plan shall describe how such criteria shall be applied and how such controls shall be implemented.

10.3.2 Information on Conditions ~~for Particular Safety Plans and Pre-dive Safety Plans~~

(1) Where necessary, the Contractor shall make exploratory dives to survey and establish all relevant conditions at the dive site such that all Pre-dive Safety Plans are based upon the best and most timely available information.

(2) Relevant information shall also be obtained by the Contractor from all available sources and shall include for example the following:

(a) Climatic information and forecasting at the diving location:

(i) Wind speed and direction;

(ii) Air temperature;

(iii) Surface visibility, fog, sea mist;

(iv) Likelihood and intensity of electrical storm; and

(v) Weather forecasting.

(b) Water/Marine Conditions:

(i) Sea state; wave height and direction;

(ii) Height and time of tides;

(iii) Water depths;

(iv) Water Temperatures;

(v) Water currents, direction and speed;

(vi) Visibility at depths; and

(vii) Water level variation in rivers or lakes during flood periods.

コメントの追加 [SS38]: (1) is to be (3).

コメントの追加 [SS39]: No. 73
JICA requested to add the following sentence we discussed to 1.7.7(4).
NK agreed and added it.

1.7.7(4)
If, at any time, the Engineer gives notice to the Contractor that the Baseline Safety Plan fails (to the extent stated) to comply with the Contract or to be consistent with the Contractor's stated intentions, and that cannot be corrected by the issue of a Particular Safety Plan, the Contractor shall submit a revised Baseline Safety Plan to the Engineer in accordance with this Clause.

(c) Physical Conditions:

(i) Underwater cables and pipes;

(ii) Wreckage and other artificial obstacles;

(iii) Geotechnical conditions affecting the work; and

(iv) UXO, Dangerous Goods and Hazardous Substances.

(d) Natural Conditions:

(i) Natural obstructions;

(ii) Coral reef or other water or marine life to be protected; and

(iii) Danger from wildlife and precautions to be taken.

(e) Surface Traffic:

(i) Surface traffic details, timings and restrictions, and

(ii) Danger, precautions and control of surface traffic.

(f) Diving Works Area:

(i) Demarcation of diving location; and

(ii) Limits of working area.

10.4 PERSONNEL FOR DIVING OPERATIONS

10.4.1 Qualification ~~of Diving Personnel~~

Qualification of the Dive Team members shall be in accordance with the specified OSHA requirements and shall for example include the following:

(1) Each Diver shall possess a valid commercial diving certification for the appropriate training level issued by an internationally recognised Diver competence assessment organisation which shall be approved by the HSO and Engineer.

(2) Each Dive Team member shall have the experience and training necessary to perform assigned tasks in a safe and healthful manner.

(3) Each Dive Team member shall have experience and training in the following:

(a) The use of tools, equipment and systems relevant to assigned tasks;

(b) Techniques of the assigned diving mode; and

(c) Diving Operations and emergency procedures.

(4) All Dive Team members shall be trained in CPR and first aid to a minimum standard of that recommended by the International Federation of Red Cross and Red Crescent Societies standard course or equivalent.

(5) Dive Team members who are exposed to or control the exposure of others to hyperbaric conditions shall be trained in diving-related physics and physiology.

(6) The qualifications of all Divers shall be checked and verified in accordance with the specified OSHA requirements.

10.4.2 Designated Person-in-Charge (DPIC)

(1) The Contractor shall assign a DPIC to each Diving Operation.

(2) The DPIC shall have experience in, and knowledge of all phases of the Diving Operation for which he is responsible.

(3) The DPIC shall be immediately responsible for the health and safety of the Dive Team.

(4) The DPIC shall be stationed at the dive location, and shall not be stationed at another dive location (i.e., the DPIC must be stationed at one (1) dive location and be responsible only for the Diving Operation at that location).

(5) The DPIC can be a Diver when qualified as a Diver, and when another Dive Team member is available at the dive location who is trained and capable of performing the necessary functions of the DPIC's duties when the DPIC is a Diver in the water.

(6) The qualifications of the DPIC shall be checked and verified in accordance with the specified OSHA requirements.

10.4.3 Duties of DPIC

The DPIC shall have the duties and responsibilities required by the content of this Chapter and the specified OSHA requirements, including the following:

(1) Manage the health and safety of the Dive Team.

(2) Manage and supervise the Diving Operation.

(3) Assign tasks to Dive Team members.

(4) Issue instructions for the Diving Operation to the Dive Team.

(5) Issue instructions to temporarily stop work when the DPIC considers that it is not safe to continue.

(6) Support the HSO with the health and safety management of the Diving Operations.

(7) Ensure that all members of the Dive Team keep records.

(8) Collect records, check, approve and submit to HSO.

10.4.4 Diver Assignments

(1) Each Dive Team member shall be assigned tasks commensurate to the persons experience and training, except that limited additional tasks may be assigned to a Diver undergoing training provided that these tasks are performed under the direct supervision of an experienced Dive Team member.

(2) The HSO shall not permit a Dive Team member to be exposed to hyperbaric conditions against the member's will, except when necessary to complete decompression or treatment procedures.

(3) The HSO shall not permit a Dive Team member to dive or be otherwise exposed to hyperbaric conditions for the duration of any temporary physical impairment or condition which is likely to affect adversely the safety or health of a Dive Team member.

10.4.5 Assistants and Duties ~~of Dive Team~~

The Contractor shall appoint such Divers and support assistants within each Dive Team as are considered necessary by the DPIC for the Dive Team to discharge its duties in a safe and competent manner.

All Dive Team support assistants shall have the duties and responsibilities required by the content of this Chapter and the specified OSHA requirements, including the following:

(1) Operate the air compressors.

(2) Control the valve for the surface supply of breathing air.

(3) Communicate with the Diver so that the Diver descends and ascends properly.

(4) Communicate to supply the air to the Diver properly between the assistants in charge to control the valve and to communicate with the Diver.

(5) Inform the Diver immediately when there is any risk due to a failure of air supply, weather

change, sea condition changes, operations of other vessels and potential hazards.

(6) Inspect the connection between the helmet and the breastplate of the Diver before the start of Diving Operations when using a diving helmet.

(7) Coordinate the position of the workboat and avoid any conflict with the Diver.

(8) Ensure the safety of the Diver by maintaining communication with voice or video communication device.

(9) Ensure the safety of the Diver by observing the air bubble of breathing of the Diver.

10.4.6 Health Checks

(1) In addition to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*] and in compliance with the OSHA requirement for the Contractor to make himself fully aware, the Contractor shall carry out particular health checks on all Divers to ascertain that they are medically and physically fit to perform their duties.

(2) Such checks shall include for example checks for the existence of any illness or any deficiency in:

(a) The respiratory system, cardiovascular system, nervous system, musculoskeletal system, ear, nose and throat, and endocrine system;

(b) Vision;

(c) Dental health; and

(d) Any other health conditions and disease which may affect the Diving Operation.

(3) Any Diver that does not pass the above checks shall not be allowed to dive until the condition has improved and after further checks are successful.

(4) Additionally, and in accordance with the OSHA standard:

(a) The DPIC shall inquire into each Diver's health prior to each Diving Operation; and

(b) The Contractor shall advise all Divers of the procedures for reporting physical problems or adverse physiological effects during and after diving.

(5) Consistent with the above and the OSHA provisions, the Contractor shall not require any Diver to dive or otherwise work under hyperbaric conditions when the Diver:

(a) Has any ailment that is likely to adversely affect the safety or health of any member of the Dive Team;

(b) Lacks the necessary training or education; or

(c) Refuses to work under such hyperbaric conditions.

(6) Should a Diver request termination during a dive, the Contractor shall, if necessary, prolong the Diver's exposure to hyperbaric conditions to complete decompression or medical recompression treatment to avoid serious physical harm or death to the Diver.

10.5 DIVING EQUIPMENT, TOOLS, FACILITIES AND WORKBOATS,

10.5.1 Diving Equipment

(1) The Contractor shall provide workboats, diving equipment, work tools and other facilities fully in compliance with OSHA 1910.430 [Equipment].

(2) Workboats, diving equipment, work tools and other facilities are defined as Contractor's Equipment and shall therefore comply with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

10.5.2 Diving Workboats

(1) Workboats shall be:

(a) Robust and seaworthy;

(b) Stable in operation;

(c) Suitable size, draft and shape to suit the Diving Operations;

(d) Equipped with marine band radio and with a shore station that is attended at all time that the workboat is in operation and can provide emergency support if required;

(e) Equipped with marine lighting;

(f) Equipped with life jackets, first aid sets, distress flares and other necessary emergency equipment;

(g) Provided with secure and robust ladders or platforms for Divers to easily enter or exit the water; and

(h) Provided with a roof and cabin to protect the crew and Dive Team from heat, cold and rain.

(2) Workboats shall be provided with the means to assist an injured Diver from the water (such as an in-water platform, small boat or basket stretcher) or into a diving bell. The Contractor shall ensure that there are sufficient Dive Team members or additional Contractor's Personnel to assist.

(3) Unless otherwise specified, the Contractor shall provide a separate small boat for rescue at the workboat, suitable for assisting and recovering Divers who are in difficulty or have drifted away from position.

10.5.3 Inspections and Maintenance

The Contractor shall comply with all requirements of JSSS 4.2 [*Inspection, Maintenance and Repair*] and ensure that workboats, equipment, tools and facilities are inspected, fully maintained and operational when mobilised to the Site and thereafter are inspected, maintained and repaired before the commencement of the first and of all subsequent days of operation.

The Contractor shall keep the inspection and working records and make them available for the inspection of the Engineer upon request.

The Contractor shall prohibit use of workboats, equipment, tools and facilities until the requirements of JSSS 4.2 [*Inspection, Maintenance and Repair*] are fully complied with.

10.6 PARTICULAR SAFETY MEASURES

10.6.1 Measures before Diving Operations

The Contractor shall take the following measures before commencement of any Diving Operation:

(1) Dive Teams

(a) Discuss the diving methods and safety procedures;

(b) Discuss the work methods and procedures and the assignment and placing of the Divers and work task sharing;

(c) Advise of the diving timetable and required compliance;

(d) Inform of the climatic, water, natural and physical conditions;

(e) Conduct the health check; and

(f) Check that support assistants and crew on the workboat are wearing life jackets.

(2) Equipment, work tools and other facilities

Inspect the equipment, work tools and other facilities, prohibit use when any defect or non-compliance is found, reinspect when a repair or replacement is completed.

(3) Diving workboats

(a) Inspect workboats and rescue boats;

(b) Display the international maritime diving signal flag and display signs and lights as necessary on the workboat;

(c) Securely anchor the workboat to the water or seabed; and

(d) Stop the engine during Diving Operation.

(4) Diving Operation site

(a) Provide signs including red flags, buoys and notices to demarcate the Diving Operation site; and

(b) Install a downline with depth indication marks at 3m intervals from the workboat to the sea bed at the Diving Operation site to act as a guideline for descending or ascending and as a guide for transfer of tools and equipment.

(5) Diving Equipment

(a) Check the diving equipment to be carried by the Divers:

(i) For Surface-Supplied Air Diving, check for example: air connections, compressed air supply, weight belt, voice or video, communication device, torch, watch, water depth gauge, knife and the like; and

(ii) For SCUBA Diving, check for example: first stage, second stage and spare regulators, available air volume, secondary air supply, buoyancy control device, weight belt, tank straps, air valve, communication device, watch, water depth gauge, knife and the like.

(b) Check that the downline is secure and tight;

(c) Ensure as a minimum, that a two-way voice or video communication link is set up and working at least between a single selected working Diver and the DPIC at the surface control point; and

If any defect is identified by the above checks, prohibit the Diving Operation from commencing.

10.6.2 Measures during Diving Operations

The Contractor shall take the following safety measures during each Diving Operation:

(1) A designated member (or members) of the workboat crew shall assist the DPIC by observing the Diving Operations of all Divers throughout all Diving Operation and inform the DPIC when Divers are carried away by currents and their location when they surface after their dive ascent.

(2) A designated member (or members) of the workboat crew on the workboat shall also keep a look-out for any other vessels that may approach the Diving Operation site. The designated member(s) shall alert any other vessels related or not related with the Diving Operations with requisite warning blasts from the workboat's siren, loudhailer, flares and/or flags, etc. in order to prevent them from approaching and entering the Diving Operation site.

(3) Measures for the Divers

(a) Prohibit the Dive Team from commencing any Diving Operation without the DPIC

and the complete Dive Team present, ready and equipped;

(b) Ensure that the Divers use the ladders for entering and exiting the water for the Diving Operation;

(c) Ensure that Divers use the downline for descending and ascending;

(d) Maintain constant voice or video communication through the provided link; and

(e) Ensure that the Divers constantly communicate with each other by hand signals and slate messaging.

(4) Ensure the DPIC or a Dive Team member at the surface, constantly observe the weather and water conditions and if there is any change that meets the work stop criteria, or if the conditions are considered to be otherwise unsafe by the DPIC, immediately stop the Diving Operation and ensure that the Divers are removed from the water in a safe and controlled manner.

(5) Safety and Health Management of Diving Operations

(a) Manage the Diving Works for each Diver so the Diver takes sufficient and safe surface time between dives to maintain his health and wellbeing;

(b) Ensure that sufficient numbers of Divers and standby Divers are available to ensure that Divers are not in the water for excessive periods;

(c) Ensure that each Diver keeps an accurate record of his dive profile for every dive, showing overall time, bottom time and depth, decompression times and depths and that these are summarised by the Diver with a record of the number of dives on a daily, weekly and monthly basis;

(d) Ensure that the DPIC reviews and approves such records and that same are submitted by the DPIC to the HSO for the HSO's review and countersignature and made available for the Engineer's inspection; and

(e) Unless otherwise required by the Law of the Country, the Contractor shall retain all dive records for the periods specified in OSHA 1910.440 [Record keeping requirements].

10.7 DIVING ACCIDENT RESPONSE PLAN

10.7.1 General

The Contractor shall prepare an Accident Response Plan for the Diving Works in accordance with JSSS 1.24 [*Accident Response Plan*].

10.7.2 Provisions by the Contractor

The Contractor shall comply with following requirements prior to Diving Works.

(1) In accordance with the requirements of OSHA 1910.423(c) [*Recompression facility*], the Contractor shall make a recompression/decompression chamber available at the dive location to treat decompression sickness.

(2) The Contractor shall provide any additional recompression/decompression equipment and medical support facilities as necessary to ensure the health and safety of any members of the Dive Team that may require treatment for decompression sickness and other dive related conditions.

(3) The Contractor shall provide rescue and safety equipment, an emergency aid contact list, a first aid kit and supplies. The rescue and safety equipment including decompression facilities, first aid kit and supplies provided at the dive location shall be appropriate for the Diving Works and approved by a physician. When used in a decompression chamber or bell, the first aid kit and any medication shall be suitable for use under hyperbaric conditions.

(4) The HSO and DPIC shall ensure that the recompression/decompression chamber, any additional recompression/decompression equipment, medical support facilities, rescue and safety equipment, emergency aid list and first aid kit are complete and available at the dive location.

JICA へ確認依頼(コメント番号は表の番号(先の確認表の番号)20200916
Changes by MD 20200916
Deletion of long titles to make them consistence proposed by NK on 20200914
Revision for final by NK discussed in the meeting with JICA on 20200911
Nos in comments are those in JICA confirmation list A2.

For Final by JICA/NK

JICA STANDARD SAFETY SPECIFICATION FOR PROJECT IMPLEMENTATION UNDER JAPANESE ODA

Japan International Cooperation Agency (JICA)

17th September 2020

Prepared: DCI for NK
Issue: FR3
Date: 17/9/2020

コメントの追加 **[MJD1]:** Shall I leave this as 14 September and FR3 throughout?

Please advise and we will change headers throughout

コメントの追加 **[SS2R1]:** Please put your date and issue No. for your reference.

I will revise them in the final report as follows:

September 2020
Not show the Prepared, Issue and Date

Header on the text may be Issue No. FR and Date:
September 2020

コメントの追加 **[MJD3R1]:** I have changed as requested

ACKNOWLEDGEMENTS

JICA have referred to other publications during the preparation of this document and parts of such other publications have been used in the preparation hereof. JICA acknowledges and gives credit to these sources/publications which include:

1) Japanese Acts, Orders and Ordinances including:

Industrial Safety and Health Act

Order for Enforcement of Industrial Safety and Health Act

Ordinance on Industrial Safety and Health

Safety Ordinance for Cranes

Ordinance on Safety and Health of Work under High Pressure

Ordinance on Prevention of Anoxia, etc.

Ordinance on Prevention of Hazards Due to Dust

Explosives Control Act

Order for Enforcement of Explosives Control Act

Ordinance on Explosives Control

2) OSHA Standards as written in Code of Federal Regulation (29 CFR) and published by the Occupational Safety and Health Administration, U.S. Department of Labor.

3) Construction (Design and Management) Regulations 2015, published by the UK Health and Safety Executive.

4) Conditions of Contract for Construction for Building and Engineering Works Designed by The Employer (Multilateral Development Bank Harmonised Edition June 2010) published by Fédération Internationale des Ingénieurs-Conseils (FIDIC)

DISCLAIMER

JICA has prepared and issued this document in good faith for the reference of executing agencies, contractors and project teams engaged under the Japanese ODA programme, to encourage the attainment of a higher standard of health and safety management on its construction projects. JICA, together with the Executing Agencies of its ODA Projects shall not accept or assume any liability or responsibility for any events or the consequences deriving from the use of this document. The document is provided without any express or implied warranty, including without limitation, warranties of accuracy, completeness, fitness for purpose, in general or on particular projects. This document is intended to provide general reference and shall not be relied upon as a specific legal source or reference or used in any way as a basis of any claim by a contractor against any employer or vice versa under any contract for the execution of any works.

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JICA STANDARD SAFETY SPECIFICATION (JSSS)

Table of Contents

コメントの追加 [SS4]: No. 1（全表無し）JSSS の節のタイトルの簡略化を行い、この目次にも反映されています。

緑、黄色部分が変更部分です。

現在、全章内で統一のチェック中です。

CHAPTER 1: GENERAL REQUIREMENTS

1.1 SAFETY DECLARATION

1.1.1 Adopting the slogan “SAFETY FIRST”, the Contractor shall proactively aim to achieve “Zero-Accident” by applying the highest achievable standards of health and safety management.

1.1.2 A Safety Declaration shall be submitted with the Bid, declaring the Bidder’s commitments and obligations, in accordance with JSSS Annex 1.3 [*Additional Contractor Forms*], Form JSSS/BSD - Bidder’s Safety Declaration.

1.2 GENERAL REFERENCE NOTES

1.2.1 For Definitions, abbreviations and standards contained in JSSS, refer to JSSS Annex 1.1 [*Definitions and Abbreviations*].

1.2.2 The following further general reference notes apply to the content of JSSS:

(1) References to “Bid” and “Contract” and to “Bidder” and “Contractor” shall be interchangeable according to the context of their use. “Bid” and “Bidder” shall become “Contract” and “Contractor” after the Contract Agreement has been executed.

(2) ~~References to “Laws of the Country” shall include all safety standards under such Laws and shall also include references to Laws of any other jurisdiction that may be stated in the Contract Data.~~

(3) Any reference to “Safety” unless otherwise evident from the text shall also be construed as reference to “Health and Safety”.

(4) Any reference to academic, educational or vocational qualification within this document, shall mean a valid qualification demonstrated by a certified true copy of a diploma, degree, or other official certification issued by an acknowledged educational institution of the Country or an equivalent alternative certification issued by an acknowledged educational institution of another country.

(5) Unless otherwise stated in JSSS, any reference in JSSS to the Site, shall also be deemed to include other places (if any) where the Contractor intends to execute or is executing the Works including for example offsite storage, fabrication and assembly areas and any other working areas outside the Site boundary.

(6) JSSS requires the provision of safety management services and facilities by the Contractor to Contractor’s Personnel and unless otherwise stated this shall also be deemed to include the provision by the Contractor of the same services and facilities (including for example training, accident response, healthcare, ~~provision of PPE,~~ records, reports, control of hazards and risks, use of Temporary Works, and the like) to any Subcontractors, suppliers and others for whom the Contractor is responsible including Employer’s Personnel and all other persons that are entitled to be on the Site.

(7) Any reference in JSSS to “relevant authority” or “relevant authorities” shall mean one (1) or more legally constituted public authorities that own or have legal jurisdiction over the work or property concerned.

(8) JSSS shall form a part of the Contract for the Works and therefore the definitions contained in the Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer, Multilateral Development Bank Harmonised Edition June 2010, General Conditions together with the Particular Conditions Part A - Contract Data and Part B - Specific Provisions, as applied to that Contract, apply equally and are used in JSSS.

Unless specified otherwise or instructed by the Engineer, the issue of JSSS to be used for the Contract shall be that which is applicable at the Base Date.

コメントの追加 **[SS5]:** No. 2
JICA agreed to delete (2) as NK and MD discussed.

コメントの追加 **[MJD6R5]:** No comment will change

コメントの追加 **[SS7R5]:** Confirmed.

コメントの追加 **[SS8]:** 2. (2)

コメントの追加 **[SS9]:** No. 3
JICA commented provision of PPE to the Employer is not recommendable.
NK agreed to delete this as special PPE shall be provided by the Contractor at the Site.

コメントの追加 **[MJD10R9]:** No comment will change

コメントの追加 **[SS11R9]:** Confirmed.

コメントの追加 **[SS12]:** 3. (3)

1.3 INCORPORATION OF JSSS INTO THE CONTRACT

1.3.1 JSSS shall form a part of the Safety Specification which, in turn forms a part of the Specification. The Safety Specification shall have priority over the other parts of the Specification in respect of health and safety matters. Within the Safety Specification, the Particular Safety Specification shall have priority over JSSS.

1.3.2 The Annexes to JSSS 1: General Requirements shall be read and construed as an integral part of JSSS.

1.4 COMPLIANCE WITH JSSS AND OTHER REGULATIONS

1.4.1 JSSS specifies the minimum health and safety requirements to be complied with by the Contractor throughout the execution of the Works.

1.4.2 JSSS shall not limit the Contractor's statutory or regulatory duties and responsibilities under the Laws of the Country and/or the specific health and safety requirements of the Contract.

1.4.3 The Contractor shall comply fully with the requirements of the Safety Specification.

1.4.4 If there are no or insufficient safety provisions in the Laws of the Country, in JSSS or in the Particular Safety Specification for the particular part of the Works, the Contractor shall propose suitable internationally acceptable safety regulations for the Engineer's consent.

1.4.5 Specified Standards

(1) Unless otherwise instructed by the Engineer, a reference to any standard (hereinafter deemed to include specified safety regulations or codes) shall mean a reference to the latest issued edition of that standard as at the Base Date.

(2) Standards specified in JSSS can be substituted with an equivalent alternative in following manner;

(a) The Contractor submits a formal request with particulars to the Engineer, and

(b) The Engineer gives a consent to the substitution,

(c) only if he considers such alternative is internationally acceptable and equivalent or higher than the standard in JSSS.

コメントの追加 **[MJD13]:** Punctuation and capitalisation is not changed as insertion is JICA request

(3) Application of detailed parts of any standards specified in JSSS may be waived at the formal request of the Contractor, only if the Contractor justifies with supporting particulars that those detailed parts are not relevant to the Contract and the Engineer gives his consent to such Contractor's request.

(4) Where JSSS refers to the standards of other countries, such reference is only to the technical requirements contained in such standards and not to any related Laws or legal enforceability of any of those countries.

1.4.6 Where there is any reference to OSHA and unless otherwise evident from the text, the words "team leader", "supervisor", "supervision", "superintendent" and the like shall be collectively construed as reference to the appropriate member of the Contractor's Personnel. Any reference to the "safety and health manager of the Contractor" and the like shall be construed as reference to the HSO and "The construction plan and safety and health plan", shall be construed as the "Method Statement" and "Safety Plan", respectively.

1.4.7 If any ambiguity or discrepancy is found in or between the various Chapters of JSSS or any reference documents and JSSS, the Engineer shall issue any necessary clarification or instruction. For the purposes of interpretation:

(1) The requirements of JSSS 1: General Requirements, shall prevail over the requirements of other Chapters of the document.

(2) JSSS 2 to 6 contain requirements which are of general application and the content of each shall apply to content of all others unless otherwise stated or unless the context is

otherwise clear.

1.4.8 Unless otherwise stated in JSSS or in the Particular Safety Specification, the Contractor shall comply with the requirements of JSSS throughout the execution of the Contract.

1.4.9 The Contractor shall fully inform his personnel, his Subcontractors, suppliers and consultants and all other parties who are associated with the Works of the existence, content, purpose and objectives of JSSS.

1.5 CONTRACTOR'S SAFETY MANAGEMENT SYSTEM

1.5.1 The Contractor shall institute a health and safety management system in accordance with ISO 45001.

1.5.2 Alternatively, the Contractor may institute his own safety management system and regularly conduct audits in accordance with JSSS 1.17 [*Compliance Monitoring and Auditing*].

1.5.3 The safety management system shall be proposed as a part of the Contractor's Safety Plans to the Engineer for his consent.

1.6 CHECKING AND VALIDATION OF SUBMISSIONS

1.6.1 The Contractor shall demonstrate that his internal procedures for checking and validation of all submissions properly function through written confirmation and signature of each of the Contractor's responsible personnel, including for example the Contractor's Representative, HSO, Temporary Works coordination, design and supervision staff and any independent checkers as appropriate. This requirement relates to all submissions for the safety, including Safety Plans, Method Statements, Temporary Works (such as drawings, designs and calculations) and of all supporting documents.

1.7 CONTRACTOR'S SAFETY PLANS

1.7.1 The Contractor shall prepare Safety Plans for the Works showing the Contractor's proposed health and safety management policies, systems and plans specifically prepared for all parts of the Works.

1.7.2 The Safety Plans shall set out or refer to all the health and safety requirements:

(1) That are stated in JSSS.

(2) That comply with the Contractor's health and safety obligations under the Laws of the Country and the Contract.

(3) That are necessary to effect and maintain a healthy and safe working environment for all Contractor's Personnel.

1.7.3 The Contractor shall be required to prepare and submit the Safety Plans principally at three (3) stages:

(1) Bid Stage Safety Plan (Outline Overall Safety Plan).

(2) Baseline Safety Plan (Updated Bid Stage Safety Plan).

(3) Particular Safety Plans (Separate plans if necessary for particular parts of the Works).

1.7.4 The Safety Plans shall ultimately provide an accurate and comprehensive description of the Contractor's arrangements to ensure that health and safety management is maintained at a high level.

1.7.5 Submission of any Safety Plan and inclusion in the Bid or Contract or any further submission to the Engineer, shall not place any limit upon the Contractor's obligations. Any additional requirements as determined by the Contract or consequent to instructions of the Engineer or by requirements at the Site, shall be complied with by the Contractor under his own responsibility.

1.7.6 Bid Stage Safety Plan:

(1) This shall be an outline plan, containing indicative content for all of the subjects listed in JSSS Annex 1.2 [*Content of Bid Stage Safety Plan*].

(2) The plan shall demonstrate that the Bidder has a clear understanding of the health and safety requirements for the Works and contain clear and sufficient detail of each item to indicate the Bidder's intentions, so that this can be understood and properly evaluated.

1.7.7 Baseline Safety Plan

(1) This shall be submitted within twenty-eight (28) days after the Commencement Date and before commencing any work at the Site.

(2) This shall be an updated Safety Plan for the whole of the Works showing the Contractor's proposed health and safety management policies, systems and plans etc. specifically prepared for all parts of the Works.

(3) This shall be based upon the Bid Stage Safety Plan, further developed as necessary by the HSO to provide a comprehensive overall Safety Plan demonstrating the Contractor's intended compliance with the Contract.

(4) If, at any time, the Engineer gives notice to the Contractor that the Baseline Safety Plan fails (to the extent stated) to comply with the Contract or to be consistent with the Contractor's stated intentions, and that cannot be corrected by the issue of a Particular Safety Plan, the Contractor shall submit a revised Baseline Safety Plan to the Engineer in accordance with this Clause.

1.7.8 Particular Safety Plans

(1) These shall be prepared as necessary to suit changing circumstances or conditions at the Site, or following the issue of Method Statements, or where considered necessary by the HSO or when required by the Engineer.

1.7.9 Procedures for Submission and Review

(1) The Contractor shall submit the Baseline Safety Plan and the Particular Safety Plans showing details of the health and safety arrangements which the Contractor proposes to adopt for the execution of the Works or any part of the Works.

(2) The Contractor shall submit:

(a) The Baseline Safety Plan in accordance with JSSS 1.7.7 [*Baseline Safety Plan*]; and

(b) The Particular Safety Plans by the date fourteen (14) days prior to the commencement of each particular part of the Works where sufficient detail has not been included in the Baseline Safety Plan and/or within fourteen (14) days after the date of the Engineer's request.

(3) Requirements for response (if any) by the Engineer and any re-submission by the Contractor and, shall be as follows:

(a) The Engineer may review the Safety Plans and may give notice of non-compliance to the Contractor stating the extent to which the Safety Plan does not comply with the Contract. Within fourteen (14) days after receiving any such notice the Contractor shall rectify any non-compliance and resubmit to the Engineer; and

(b) If the Engineer gives no such notice of non-compliance for the original Safety Plan within twenty-one (21) days of the date of receipt or for the resubmitted within fourteen (14) days of receipt, the Contractor shall proceed in accordance with the Safety Plan subject to complying with his other obligations under the Contract.

1.7.10 The Contractor shall maintain records and make reports in accordance with JSSS and the applicable health and safety regulations, and further comply with any reasonable requests by

コメントの追加 **[SS14]:** JICA requested to add (4) which was not shown in the last submission but I showed this to add this (4).
NK agreed to add this.

コメントの追加 **[MJD15R14]:** No comment will change

コメントの追加 **[SS16R14]:** Confirmed.

the Engineer (if any).

1.7.11 Compliance with the Safety Plan and JSSS shall not relieve the Contractor from any duty, obligation or responsibility under or in connection with the Contract.

1.7.12 The Contractor shall also consider the opinions of his workers in preparing Safety Plans or updated Safety Plans.

1.8 RISK ASSESSMENT

1.8.1 In performing risk assessments, the Contractor shall find and correct all potential risks and hazards primarily by trying to eliminate or reduce such risks and hazards through making feasible changes in working conditions rather than relying on PPE.

1.8.2 The Contractor shall fully inform Contractor's Personnel of hazards and risks on the Site.

1.8.3 The procedural flow of risk assessment shall be as follows.

(1) Identifying hazards.

(2) Evaluating risks.

(3) Determining measures of risk reduction or elimination.

1.8.4 The procedural flow for risk reduction measures shall be as follows with earlier listed items having higher priority:

(1) Removal of hazards such as eliminating dangerous methods of construction.

(2) Changing to a safer construction method and alternating to low risk processes, operations, materials or equipment.

(3) Engineering measures.

(4) Management measures including improving skills with additional training.

(5) Use of PPE.

1.9 CONTRACTOR'S METHOD STATEMENTS

1.9.1 The Contractor shall prepare Method Statements for all parts of the Works with details of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works.

1.9.2 Method Statements shall be developed taking account of the results of risk assessment in accordance with JSSS 1.8 [*Risk Assessment*] and include details of all Permanent Works and Temporary Works with supporting documents such as:

(1) Studies, investigations and designs.

(2) Structural calculations and any other calculations.

(3) Specifications and technical details.

(4) Proposed construction procedure, sequence and method.

(5) Construction resources including superintendents, workers, Operation Leaders and Contractor's Equipment.

(6) Inspection and monitoring plan.

1.9.3 The Contractor shall demonstrate in the Method Statements that he has put internal procedures in place to encourage the systematic approach to performing the Works in an efficient, safe and environmentally compliant manner.

1.9.4 The Contractor shall submit Method Statements showing details of the arrangements and methods which the Contractor proposes to adopt for the execution of any part of the Works. Whenever the Engineer requires further information, the Contractor shall submit the required information within fourteen (14) days of the request.

1.9.5 Requirements for submission by Contractor and response (if any) by the Engineer to Method Statements, shall be as follows:

(1) The Engineer may review the Method Statements and may give notice of non-compliance to the Contractor stating the extent to which the Method Statements do not comply with the Contract. Within fourteen (14) days after receiving any such notice the Contractor shall rectify any non-compliance and resubmit to the Engineer.

(2) If the Engineer gives no such notice of non-compliance for the original Method Statement within twenty-one (21) days of the date of receipt or for the resubmitted within fourteen (14) days of receipt, the Contractor shall proceed in accordance with the Method Statement.

(3) The Contractor shall submit a revised Method Statement whenever required by the Engineer or when any previous Method Statement for any part of the Works is inconsistent with actual conditions or requirements prevailing at the Site.

(4) The Method Statement shall be revised as necessary by the Contractor or the HSO and each revision shall be submitted promptly to the Engineer.

1.10 ENGINEER'S SAFETY REPRESENTATIVE

1.10.1 The Engineer may delegate his power and authority to any of his assistants at the Site who shall act as the Engineer's health and safety representative for the purpose of complying with any health and safety obligations under JSSS.

1.10.2 The terms of the appointment shall be in accordance with GC 3.2 [*Delegation by the Engineer*].

1.10.3 Whenever the term "Engineer" is used in JSSS this shall be deemed to include the resident engineer or any other assistant of the Engineer if so appointed in accordance with the terms of their delegated authority.

1.11 SAFETY COMPLIANCE INSTRUCTIONS FROM THE ENGINEER

1.11.1 Without affecting or diminishing the Contractor's responsibility under GC 4.1 [*Contractor's General Obligations*] and to ensure the adequacy, stability and safety of all Site operations and of all methods of construction, the Engineer shall observe the Contractor's performance at the Site and if in his opinion the Contractor is failing or has failed to carry out any part of the Works in accordance with the Safety Plan or other health and safety requirements of the Contract, the Engineer may give notice and instruct the Contractor to take necessary corrective and preventive measures to comply with the Contract.

1.11.2 If any part of the Works is considered by the Engineer to pose a danger and which in his opinion could result in an accident, the Engineer may instruct the Contractor to suspend such part of the Works under GC 8.8 [*Suspension of Work*] until the Contractor has advised the Engineer of the proposed corrective and preventive measures, obtained the Engineer's consent and implemented such measures to ensure that such danger is eliminated.

1.11.3 If an accident has occurred, the Engineer may instruct the Contractor to suspend the Works or any part of the Works under GC 8.8 [*Suspension of Work*] and not allow work to recommence until such time as:

(1) All circumstances have been investigated and the cause of the accident has been established by the HSO.

(2) Corrective and preventive measures have been formulated by the HSO and proposed to the Engineer.

(3) The Engineer's consent has been obtained for such measures.

(4) The measures have been implemented to ensure that no such accident can reoccur.

1.11.4 The actions arising as above shall be deemed to be the responsibility of the Contractor irrespective of the issue of any action or instruction by the Engineer.

コメントの追加 **[SS17]:** No. 8
No need to revise because JICA agreed to leave "may" for which NK explained in the meeting of 9/11 as discussed with MD and Hayashi.

コメントの追加 **[MJD18R17]:** No further comment

コメントの追加 **[SS19R17]:** Confirmed.

コメントの追加 **[SS20]:** 4. (8)

1.12 HEALTH AND SAFETY OFFICER AT THE SITE (HSO)

1.12.1 Requirements for the HSO:

(1) The Contractor shall assign the HSO at the Site on or before the Commencement Date.

(2) The Contractor shall ensure that the Contractor's Personnel respect instructions issued by HSO in the health and safety aspects.

(3) If the named person is for any reason unavailable or if the appointed person fails to act as HSO and is removed from the Site, the Contractor shall submit the name and particulars of a suitable and equally experienced and qualified replacement to the Engineer for his consent.

(4) The HSO shall be an employee of the Contractor or a specialist health and safety consultant and unless otherwise specified in the Particular Safety Specification, the HSO shall be assigned full time upon the Works.

(5) The Contractor shall not revoke the appointment of the HSO or appoint a replacement without the prior consent of the Engineer.

(6) The HSO shall, where possible, be fluent in the ruling language of the Contract and also the language for communications stated in the Contract as defined in GC 1.4 [*Law and Language*]. It is acceptable for the HSO to use a translator for either or both of these languages.

(7) The HSO shall possess appropriate educational qualification for such position and (if so required by the Laws of the Country) shall be licensed or registered in the Country and perform such duties as are legally mandated.

(8) Where there is no requirement under the Laws of the Country the HSO shall have appropriate academic, educational or vocational qualification such as:

(a) An International Diploma issued by the National Examination Board in Occupational Safety and Health (NEBOSH) in UK; or

(b) A certification as a Certified Safety Professional (CSP) by the Board of Certified Safety Professionals (BCSP) in USA; or

(c) An equivalent alternative internationally recognised qualification covering health and safety and risk management.

(9) Unless otherwise specified in the Particular Safety Specification, the HSO shall have minimum five (5) years' work experience in the construction industry of which minimum two (2) years shall be in health and safety management.

(10) The HSO shall be a person that the Contractor considers is qualified, experienced and able to perform the duties competently and his appointment shall be subject to receiving the consent of the Engineer.

1.12.2 Supporting Personnel

(1) The Contractor shall also appoint such further supporting personnel as the HSO may from time to time deem necessary or as may be instructed by the Engineer, to permit the HSO to perform his duties.

(2) Such further supporting personnel may include Operation Leaders and/or other senior specialist and qualified Contractor's Personnel.

(3) Irrespective of any such appointment the HSO shall remain singularly responsible for the actions of such supporting personnel in terms of health and safety management.

(4) Any reference in JSSS to the HSO performing inspections or the like for the health and safety aspects of any parts of the Works, shall be understood to include any inspections performed by any of these supporting personnel on behalf of the HSO and for which the

HSO shall remain responsible.

(5) The HSO shall prepare an internal procedure for the management of his supporting personnel, to ensure that:

(a) Supporting personnel are made aware of the requirements for any inspection and the details thereof;

(b) Supporting personnel immediately advise the HSO of any unsafe conditions with recommendations to prohibit the start or to stop or to change safety practices for the particular work; and

(c) Communications and submissions between HSO and supporting personnel are efficient, timely and clear.

Following implementation and compliance with the above procedure, the HSO shall sign all inspection records as if the inspection has been carried out by the HSO.

(6) Where the Works or any part of the Works is to be performed in shifts or in excess of normal working hours, or over an extensive working area or where major works are being undertaken simultaneously, or like circumstances, the Contractor shall appoint additional qualified supporting personnel for the HSO all as necessary to ensure that the HSO is always able to perform his duties efficiently and effectively and so that health and safety management is not adversely affected.

1.12.3 Inspections

(1) The HSO shall be responsible for ensuring:

(a) That all working areas are inspected on a regular basis (at least once every working day or as otherwise required by JSSS) to detect if any unsafe practices, works or conditions exist and that all required safety measures are in place;

(b) That if such unsafe practices, works or conditions are found to exist, then to immediately issue instructions to all affected persons and immediately implement corrective measures in cooperation with such personnel or if this is not possible then to temporarily stop all construction activity on that part of the Works until such corrective action has been taken; and

(c) That all inspection requirements of JSSS are complied with including the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

(2) Any site inspections attended by the HSO, may also include the attendance of the Engineer at the option of the Engineer.

1.13 HSO - SCOPE OF DUTIES AND AUTHORITY

1.13.1 The HSO shall devote his full time and attention to maintaining health and safety upon the Works and protecting against accidents.

1.13.2 The particular scope of duties and authority of the HSO shall cover (but shall not be limited to) the following:

(1) Preparation and submission of Safety Plans, implementation, evaluation, improvement and revision thereof.

(2) Preparation of monthly schedule of health and safety management activities, informing the Contractor's Personnel.

(3) Regular (daily) inspections of the Works at the Site to ensure the Contractor's compliance with the Safety Plan.

(4) Temporarily stopping the Works or any part of the Works following any accident or where the HSO considers it unsafe to continue or where there is unsafe behaviour or

practices of the Contractor's Personnel or any non-compliance with the Safety Plan.

(5) Temporarily stopping the Works or any part of the Works where the Engineer so instructs in accordance with JSSS 1.11 [*Safety Compliance Instructions from the Engineer*].

(6) Investigating accidents, establishing cause, formulating and implementing preventive measures to avoid risk and prevent reoccurrence.

(7) Preparing proposals, reporting and consulting with the Engineer, especially when an accident occurs or any risk or hazardous situation is likely.

(8) Instructing Operation Leaders in the health and safety aspects of their work including requirements for inspection and confirmation of results to HSO.

(9) Instructing the Contractor's Personnel to take improvement measures for maintaining health and safety and preventing accidents.

(10) Assisting with the selection and assignment of workers and other Contractor's Personnel, including ascertaining the physical and mental health, age and capability in consideration of the nature of work to be carried out.

(11) Planning and implementation of various training and education implementation plans.

(12) Creating and implementing procedures for monitoring and maintaining accident and safety statistics, including fatalities, lost time records and near-miss cases.

(13) Preparing regular internal and external reports on health and safety activities.

(14) Hazard prediction activity.

1.14 PROCEDURE FOR RESUMING THE WORKS

1.14.1 If the Engineer has issued an instruction under JSSS 1.11 [*Safety Compliance Instructions from the Engineer*] or if the HSO has temporarily stopped the Works or any part of the Works in accordance with JSSS 1.13 [*HSO - Scope of Duties and Authority*], then, unless otherwise instructed by the Engineer, the procedure for resuming the Works or any part of the Works, shall be as follows:

(1) The Contractor (represented by the HSO) shall investigate and establish the cause, formulate preventive measures to ensure that the risk is avoided and accident cannot occur/reoccur.

(2) The Contractor (represented by the HSO), shall prepare and submit his proposal describing the investigation, cause and preventive measures to the Engineer.

(3) The Engineer ~~may~~ shall review the Contractor's proposal and may give notice of non-compliance to the Contractor stating the extent to which the proposal does not comply with the Contract. Within seven (7) days after receiving any such notice the Contractor shall rectify such non-compliance and resubmit to the Engineer.

(4) If the Engineer gives no such notice of non-compliance for the original proposal within seven (7) days of the date of receipt or for the resubmitted proposal within seven (7) days of receipt, the Contractor shall resume the Works or part thereof in accordance with the proposal by giving three (3) days' notice in writing of the resumption date.

To be proactive, the Engineer may give consent at any stage within the above stated time scales.

(5) The Contractor resumes the Works or part of the Works on the due date.

(6) The Contractor verifies the effectiveness of the preventive measures and informs the Engineer.

(7) The Contractor carries out a risk assessment and revises the Safety Plan and Method Statements as necessary.

コメントの追加 **[SS21]:** "may" is replaced with "shall" because involvement of the Engineer is necessary after accident to avoid recurrence of accident.

コメントの追加 **[MJD22R21]:** I agree and will change

コメントの追加 **[SS23R21]:** Confirmed.

コメントの追加 **[SS24]:** 4. (8)

コメントの追加 **[SS25]:** SS: I think this " may" be left as (4) states for the case of no such notice is given.

コメントの追加 **[MJD26R25]:** I agree and will not change

コメントの追加 **[SS27R25]:** Confirmed.

1.15 CONTRACTOR'S SAFETY MANAGEMENT ACTIVITIES

1.15.1 The Contractor shall faithfully implement the Safety Plan performing all necessary management activities to ensure total compliance.

1.15.2 In addition to the tasks of the HSO described above, the Contractor's health and safety management activities shall include (but are not limited to):

(1) Overall Safety Management Activities:

(a) Instruction on safety matters in the Toolbox Meetings (TBM);

(b) Pre-work meetings, pre-start meetings, schedule meetings and other internal meetings; and

(c) Monitoring the implementation of the Safety Plan.

(2) Daily Safety Management of Contractor's Personnel:

(a) Instruction and management on health and safety at general morning meetings, pre-work meetings, TBM;

(b) Providing specific advice and instructions to all Contractor's Personnel on their assigned work tasks in advance of starting so that all workers are aware of the requirements of the Method Statements and Safety Plan including work place, scope, methods, PPE, timing and safety procedures;

(c) Instruction and management of traditional Japanese cleanliness safety campaigns known in Japan as:

5S ACTIVITIES where: Seiri = sorting, Seiton = tidying, Seiso = cleaning, Seiketsu = cleanliness and Shituke = discipline;

(d) Instruction and management of safety education and training;

(e) Instruction and management of all safety measures; and

(f) Site Safety Inspections.

1.16 JOINT SITE SAFETY INSPECTIONS

1.16.1 In addition to the HSO's own daily Site Safety Inspections, the HSO shall conduct regular Joint Site Safety Inspections with the Engineer. Respective safety staff may also attend.

1.16.2 Frequency of Joint Site Safety Inspections shall be at least once a week.

1.16.3 Where any safety risks are detected during the inspections, the Contractor shall take immediate action.

1.16.4 The Engineer may be invited or may choose to participate in the Contractor's daily site safety inspections which will then be deemed to be a Joint Site Safety Inspection.

1.16.5 The Contractor shall prepare a report of each Joint Site Safety Inspection and submit this to the Engineer within seven (7) days after the inspection. A further copy shall be included in the Contractor's monthly progress report.

1.17 COMPLIANCE MONITORING AND AUDITING

1.17.1 The HSO shall develop and implement systems to ensure that compliance with the Safety Plan is ensured. Such compliance shall be monitored efficiently and transparently at all times, for which purpose the Contractor shall:

(1) Create checklists for monitoring.

(2) Carry out regular and random inspections.

(3) Analyse unsafe or non-compliant conditions and determine the effective measures in ensuring safety and minimising accidents.

(4) Create storage and filing systems for the monitoring records.

(5) Copy safety information to the Engineer as may be necessary for the Engineer's file if so requested by the Engineer.

1.17.2 Safety inspections are intended to search for risks and hazards which present a threat to safe working.

1.17.3 The Contractor shall also carry out regular health and safety audits, to ascertain if the Contractor's Safety Plan and health and safety management systems are working by focussing basically on the following five questions:

(1) Does the Safety Plan cover all regulatory and construction industry best practice requirements?

(2) Are the Safety Plan requirements being met?

(3) Is there documented proof of compliance?

(4) Is health and safety training effective?

(5) Is the Contractor's health and safety management system working effectively?

1.17.4 The persons or team designated to conduct the audits should take a fact-finding approach to gather data and members shall be familiar with the Safety Plan and the nature of the Works.

1.17.5 The audit procedures shall be prepared by a senior member of the Contractor's head office health and safety section and shall require the consent of the Engineer.

1.17.6 The audit shall be headed by a senior member of the Contractor's head office health and safety section.

1.17.7 Audits may be outsourced by the Contractor to a health and safety company subject to obtaining the consent of the Engineer.

1.17.8 The HSO may attend audits but only in an advisory capacity.

1.17.9 The Contractor shall invite the Engineer to attend in the capacity of a witness ensuring that the audit is being carried out effectively and with a balanced, fair and non-biased approach.

1.17.10 The health and safety audits are primarily to check the effectiveness of the Safety Plan, the Contractor's health and safety personnel and the Contractor's health and safety management systems. The Audits shall not replace the regular health and safety inspections.

1.17.11 The audits shall be conducted at least twice every year and without giving notice to the Contractor's Personnel or others when any audit is to take place.

1.17.12 An audit report shall be prepared by the leader of the audit team, detailing the findings of the team and submitted to the HSO, with a copy to the Engineer within seven (7) days after the audit. The report shall be signed by all attendees of the Contractor to certify their agreement to the content and to any recommendations for improvement.

1.17.13 The HSO shall analyse the findings of the audit, revise the Safety Plan and change health and safety management practices as necessary to ensure the required improvement. The Engineer shall be fully informed of all such revisions and changes.

1.18 PROPER PLACEMENT OF CONTRACTOR'S PERSONNEL

1.18.1 To a varying extent, many types of construction works are inherently dangerous and accordingly the Contractor under his duty of care must ensure that risks arising from all such potential dangers are avoided and Contractor's Personnel consequently protected.

1.18.2 In compliance with GC 6.9 [*Contractor's Personnel*], the Contractor shall assign only those personnel who are appropriately qualified, skilled and experienced in their respective trades or occupations. Contractor's Personnel shall also be suitable and capable of performing the work tasks for which they are selected in consideration of their physical fitness, mental condition,

age and capability, all shall be equipped with correct PPE, tools, equipment and safety equipment.

1.18.3 Workers and unskilled workers shall never be assigned to any work on Site on their own, all shall be assigned in groups and each work group must always include an Operation Leader to ensure compliance with the Contractor's safety regulations.

1.18.4 The correct grades and numbers of Contractor's Personnel shall be assigned to respective work tasks and reasonable times and durations and support facilities shall be afforded by the Contractor to promote the safe and effective discharge of duties.

1.18.5 The HSO shall countersign all records to certify his confirmation that each member of the Contractor's Personnel is appropriately qualified, skilled and experienced in their respective trades or occupations prior to their placement. These records shall be made available for inspection by the Engineer.

1.18.6 Suitability of Contractor's Personnel and their work assignment shall be assessed by the Contractor with the assistance of the HSO in consideration of:

(1) Work content and work environment.

(2) Educational or vocational qualifications, practical experience, skill training and eligibility for category, title, rank or position by virtue of their achieved and demonstrated capability.

(3) Physical and mental health condition upon commencement of employment and on a regular basis before daily work starts.

(4) Allocation of an achievable and safe work volume and time.

(5) Allocation of suitable work to older workers and also to workers under 18 in compliance with GC 6.21 [*Child Labour*].

1.18.7 If the Laws of the Country require operating, supervising or management staff or any other Contractor's Personnel to have a licence, particular academic, educational or vocational qualification, diploma, registration or certification for any of their services or operations at Site, the Contractor shall ascertain that all such Contractor's Personnel possess such documents.

1.18.8 The Contractor shall ascertain the authenticity and validity of licenses and all other documentation for Contractor's Personnel and if necessary shall independently test all personnel to ascertain that they do possess sufficient knowledge, academic, educational or vocational qualification, experience and skills.

1.18.9 The Contractor shall implement an identification (ID) pass system whereby all Contractor's Personnel carry ID passes with name, photograph, blood type, official ID number and statement of the skill and position for which the worker is qualified and assigned. This shall be clearly displayed by the person and be available for inspection and validation by the Engineer at all times. If any of the Contractor's Personnel is found not to have such valid ID for the position upon which he is assigned, the Engineer will instruct that person directly to stop work immediately, contact the HSO immediately and instruct that the HSO resolves the situation without delay by immediately removing the offending person from the particular work being undertaken and assigning a suitable replacement, unless otherwise instructed by the Engineer.

1.19 SAFETY TRAINING GENERALLY

1.19.1 The Contractor shall conduct health and safety education and training for all the Contractor's Personnel.

1.19.2 The Contractor shall describe in the Safety Plan the outline of the health and safety training plans describing participants, time, teaching materials, policy for selecting trainers, etc. In addition, the Contractor shall submit full details of all health and safety training to the Engineer for information before the start of any training.

1.19.3 Training shall be provided free-of-charge to all participants and conducted during normal working hours, all trainees shall be paid their normal wages during training and the Contractor shall bear all necessary associated costs and expenses.

1.19.4 Training shall be provided in a language which the persons to be trained fully understand (i.e. the language of the persons to be trained or the language for communications as defined in GC 1.4 [*Law and language*] as appropriate.

1.19.5 Training Personnel

(1) Trainers (which description shall include teachers and educators also) can be personnel employed by the Contractor or external trainers for whom the Contractor shall remain responsible, all experienced, academically, educationally or vocationally qualified and (if required by the Laws of the Country), formally registered as trainers, teachers and educators.

(2) All trainers shall be fluent in the language to be used in the training. Where necessary, proficient translators familiar with construction safety terms shall be provided by the Contractor.

(3) In case of absence of availability of suitable trainers in the Country, the Contractor shall mobilise personnel from other countries whom the Contractor considers possess the necessary academic, educational or vocational qualification, ability and experience, subject to receiving the advance consent of the Engineer.

1.19.6 Records of Education and Training

The Contractor shall create and maintain records of all trainees, showing full details of training subjects and their capability, achievements etc., and all shall be made available for the inspection of the Engineer.

1.20 SAFETY INDUCTION TRAINING

1.20.1 Safety induction training shall be provided by the Contractor for all Contractor's Personnel, any Subcontractors, suppliers and others for whom he is responsible, including the Employer's Personnel and all other persons who are entitled to be on the Site at the request of the Employer or Engineer.

1.20.2 The safety induction training shall include classroom-based training course and practical on-site demonstration, in which the following subjects shall be covered:

(1) Responsible persons, chain of command and means of communication.

(2) Use of Contractor's Equipment, small tools and tackle, machinery, Temporary Works, Goods, materials; potential danger and required care.

(3) Working procedures generally.

(4) Inspections before starting and during execution of any work, reporting unsafe working conditions and equipment.

(5) Dangerous Work; General rules, locations, posting warning signs, precautions and general working requirements. Refer to JSSS 1.22 [*Dangerous Work*] for additional training requirements.

(6) PPE and other safety devices; use, handling and care, reporting worn, damaged or defective equipment.

(7) Maintaining all working areas in an orderly, tidy and clean condition at all times.

(8) Accidents; action, evacuation and treatment, basic first-response medical aid, reporting.

(9) Firefighting; actions, precautions and control.

(10) Health and safety rules.

(11) Causes and prevention of diseases and conditions which may be injurious to health that may occur in relation to the work concerned.

(12) Emergency Response Plan; evacuation and calling list.

(13) Other related health and safety matters.

1.21 SKILL TRAINING

1.21.1 The Contractor shall ensure that all Contractor's Personnel shall be appropriately qualified, skilled and experienced in their respective trades or occupations in accordance with JSSS 1.18.2.

1.21.2 The Contractor is also reminded of his obligations under GC 6.1 [*Engagement of Staff and Labour*] according to which the Contractor is encouraged, to the extent practicable and reasonable, to mobilise the local human resources with appropriate qualifications and experience. However, if the qualified, skilled and experienced Contractor's Personnel required by the Contract is not available in the Country or not available in the numbers or of the standards of for the periods required, the Contractor shall:

(1) Source and assign upon the Works Contractor's Personnel (of at least Operation Leader and skilled worker status) from other countries, and/or

(2) Recruit candidates in the Country and train them to provide the skill required to properly perform their assignments.

This shall be in such numbers and for such periods as are necessary to maintain the required standards of performance, quality, health and safety throughout the execution of the Contract.

(1) The Contractor shall test and qualify such personnel and provide them with formal written confirmation of their training, testing and academic, educational or vocational qualification, with copies provided to the Engineer if so requested by the Engineer.

(2) Outline of such training shall be submitted with the Bid Stage Safety Plan. Details of the training shall be further developed in the Baseline Safety Plan and onward.

(3) Skill Training may be omitted in full or in part for any Contractor's Personnel who, the Contractor has ascertained, hold valid academic, educational or vocational qualification and who are appropriately skilled and experienced in their respective trades or occupations in full compliance with GC 6.9 [*Contractor's Personnel*]. The Contractor shall report the names of any such Contractor's Personnel to the Engineer for his information.

1.21.3 Further Training of Operation Leaders and Skilled Workers

(1) Unless otherwise specified in the Particular Safety Specification and without limiting or changing the Contractor's obligations under the Contract, the Contractor shall be required to select candidates from his local skilled and unskilled workforce that he considers are suitable to act as future Operation Leaders and skilled workers, respectively.

(2) Training of Operation Leaders

(a) The Contractor shall ensure that his personnel work closely with and transfer necessary knowledge and skills via OJT to such candidates to develop their management abilities, skill levels and awareness of international safety and quality standards; and

(b) To compliment the OJT, the Contractor shall provide classroom-based training courses and assign qualified instructors to develop the ability, skills and awareness and also to pass on their knowledge in future to their working colleagues and compatriots.

(3) Training of Skilled Workers

(a) The Contractor shall ensure that his personnel work closely with and transfer

necessary knowledge and skills via OJT to such candidates to develop their skill levels and awareness of international safety and quality standards; and

(b) To compliment the OJT, the Contractor shall provide classroom-based training courses and assign qualified instructors to develop the ability, skills and awareness according to the work and also to pass on their knowledge in future to their working colleagues and compatriots.

(4) The Contractor shall develop the syllabus and teaching hours appropriately and submit details to the Engineer for his information. Wherever appropriate, the syllabus shall also include health and safety training to an international level of appreciation with a general introduction to OSHA and other applicable international safety standards and regulations.

1.21.4 Unless otherwise specified in the Particular Safety Specification, the Contractor shall not bring into the Country for use upon the Works any unqualified, unskilled or inexperienced foreign Contractor's Personnel.

1.22 DANGEROUS WORK

1.22.1. Examples of Dangerous Work

For clarity "Dangerous Work" shall also include the following examples:

(1) The delivery, storage and/or use of harmful, dangerous or explosive materials, chemicals, gases or the like to be used in the Works or for use in or which are the product of the manufacturing or treatment process of the finished Works or in Operational Areas.

(2) Welding work, hot cutting work or demolition work.

(3) Work in areas where Contractor's Personnel are already performing work that may become more hazardous if anyone other than authorised personnel enter, for example Scaffolding erection, use and dismantling, and areas where Contractor's Equipment is operating and the HSO considers there to be a risk of any accident.

(4) Work in areas where very hot or cold objects are being handled and/or the working area itself is extremely hot or cold.

(5) Work in areas where there is potential exposure to harmful radiation or ultrasound.

(6) Work in areas where the concentration of gases, dust and any other dangerous or harmful materials exceed the limits specified in JSSS 2.1 [*Work Environment*].

(7) Work in areas where Permanent Works or Temporary Works have not been performed completely or properly and/or which are therefore unsound, unstable or unsafe.

(8) Work in areas under, within or adjacent to existing buildings, roads, bridges or other structures which are unstable and/or unsafe and which pose risks to safety unless additional support and strengthening measures are implemented.

(9) Work in areas which may have been damaged and otherwise rendered dangerous by adverse climatic, natural or seismic conditions.

1.22.2. Particular care shall be taken by the Contractor when performing any Dangerous Work.

1.22.3. Contractor's Personnel who are to perform or be involved at the Site in the performance of Dangerous Work, in addition to the usual safety induction training, shall be given further special training according to the nature of the Dangerous Work upon which they are to be engaged so that they can safely perform such work.

1.22.4. The HSO shall check and certify that each of the trained workers are authorised to be engaged upon particular types of Dangerous Work, by issuing an official permit in accordance with JSSS 1.23 [*Permit to Work System – Dangerous Work*] that is to be worn conspicuously and be available for validation by the Engineer.

1.22.5. The HSO shall ensure where Dangerous Work is to be performed, that preparatory pre-work

inspections are carried out to investigate and assess the work to be performed and ascertain the conditions likely to be encountered. Such inspection work shall be carried out by specially trained personnel. The Contractor shall prepare safety procedures to ensure that any such inspection personnel are not placed at risk because of any unsafe environmental or other adverse or dangerous conditions.

1.22.6. A specially trained Operation Leader shall always be assigned to work full-time with every worker or team of workers engaged upon Dangerous Work.

1.22.7. The Contractor shall train and equip teams of selected workers at the Site for emergency rescue operation in accordance with JSSS 1.24 [*Accident Response Plan*].

1.22.8. The Contractor shall prepare and implement procedures for effective safety control of Dangerous Work. Such procedures may include zoning arrangements whereby different degrees of risk are separately categorised into different levels of requirement. The contents of this shall be included in the Method Statement and Safety Plan.

1.22.9. Signage shall clearly describe the Dangerous Work and state the reasons why the area is dangerous.

1.22.10. For measures for prohibiting entry, methods of demarcation and further definition of Dangerous Work, refer to JSSS 2.3 [*Prohibition of Entry*].

1.22.11. Hazardous Substances.

(1) If the Contractor during the execution of the Works, encounters and is required by the Particular Safety Specification or instructed by the Engineer to remove any Hazardous Substances (for example: asbestos and similarly dangerous or hazardous materials), the Contractor shall employ suitable specialists that are appropriately and specifically qualified, skilled and experienced in the safe and environmentally acceptable removal and disposal of the Hazardous Substances.

(2) The Contractor shall submit Safety Plans and Method Statements with respect to the removal and disposal of the Hazardous Substances to the Engineer in accordance with JSSS 1.7 [*Contractor's Safety Plans*] and JSSS 1.9 [*Contractor's Method Statements*].

1.23 PERMIT TO WORK SYSTEM – DANGEROUS WORK

1.23.1 The Contractor shall prepare and implement a "Permit to Work System" and a description of this shall be included in the Safety Plan.

1.23.2 The system shall be designed to control safety for Dangerous Work.

1.23.3 The system shall ensure that all foreseeable risks have been considered and that the required control measures for safe working have been implemented before any specific work is permitted to proceed.

1.23.4 Permits shall certify that workers are protected when they perform and workers shall sign the permit and register to show that they understand the risks and the precautions necessary.

1.23.5 The HSO shall assess the work and check safety at each stage and manage the Permit to Work System.

1.24 ACCIDENT RESPONSE PLAN

1.24.1 The Contractor shall be responsible for responding to and treating accidents at the Site in an efficient and dedicated manner with the provision of rescue and treatment services using trained personnel with experienced and qualified medical staff and adequate and equipped facilities at the Site.

1.24.2 Medical, first aid and related services and facilities at the Site for accidental injuries shall be made available free of charge for Contractor's and Employer's Personnel. If so specified in the Particular Safety Specification, such services and facilities shall also be made available free of charge for the family members of such Contractor's and Employer's Personnel.

1.24.3 The Contractor shall prepare an Accident Response Plan as a part of the Safety Plan.

1.24.4 The Contractor shall provide the following medical and first aid services and facilities on the Site:

(1) Appropriate first aid appliances, aids, instruments and medicines.

(2) Trained first aiders.

(3) Communication facilities and measures for Emergency Response.

(4) Medical facilities on the Site together with suitable medical equipment and consumables.

(5) Temporary water and power supply to maintain use during mains supply failure.

(6) Transportation to be provided to efficiently and carefully transport casualties to medical facilities on the Site or hospitals off the Site.

(7) Additional facilities specified in the Particular Safety Specification, if any.

1.24.5 Where the Site is located at an excessive distance from urban areas and/or where there is a lack of immediate availability of medical services and facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site to comply with his obligations as specified in the Particular Safety Specification and as are necessary to fully protect all relevant personnel.

1.24.6 The Contractor shall train selected Contractor's Personnel to perform emergency rescue in a safe manner in the event of any accident. Workers so trained are called upon in the event of any emergency to rescue any person(s) who may become trapped or injured or otherwise affected or incapacitated and provide suitable, specialist and appropriate first aid treatment. They shall be allowed to continue with their normal work when not required for emergency rescue.

1.24.7 Rescue equipment shall include respiratory protective equipment for rescue operations, where the nature of the Works would dictate, safety extraction belts/harnesses/ropes.

1.24.8 Workers trained for emergency rescue, in addition to normal first aid treatment, shall be trained to Cardiopulmonary Resuscitation (CPR) and also to operate an Automatic External Defibrillator (AED) in accordance with the requirements of JSSS 2.9 [*PPE and First Aid*].

1.24.9 Adequate first aid equipment and supplies shall in any case be readily available at the Site and as referred to in JSSS 2.9 [*PPE and First Aid*].

1.25 MEASURES AT THE TIME ACCIDENTS OCCUR

1.25.1 When an accident occurs, the HSO shall immediately discontinue the concerned work, inform the Engineer and take all efforts to:

(1) Safely locate and extract casualties.

(2) Provide first aid treatment at the Site.

(3) Implement Secondary accident prevention activities, including:

(a) Preserving the accident site, make safe and prohibit any personnel to engage in rescue activities who are not trained to do so;

(b) Discontinuing construction work related to or in the vicinity of the accident; and

(c) Implementing any further measures instructed by the Engineer.

1.25.2 Report of Accident Occurrence, Cause, Investigation, Result and Recurrence, Prevention Measures.

(1) At occurrence of any accident, the HSO shall promptly inform the Engineer and thereafter submit details of the accident within twenty-four (24) hours after its occurrence.

コメントの追加 **[SS28]:** 5. (18)

コメントの追加 **[SS29]:** No. 18
JICA commented "the Site" is defined in JSSS1.2.2(5) the Site, shall also be deemed to include other places (if any) where the Contractor intends to execute or is executing the Works including for example offsite storage, fabrication and assembly areas and any other working areas outside the Site boundary.

NK agreed to leave on the Site because the Site include places outside of the Site.

コメントの追加 **[MJD30R29]:** No further comment

コメントの追加 **[SS31R29]:** Confirmed.

コメントの追加 **[SS32]:** 6. (20)

コメントの追加 **[SS33]:** No. 20
JICA want to write full spelling of these abbreviation at first come out even though they are provided in Annex. There is statement like Toolbox Meetings (TBM) in 1.15.2 (1) (a), so NK agreed JICA's request.

コメントの追加 **[MJD34R33]:** No comment will change

コメントの追加 **[SS35R33]:** Confirmed.

(2) Having investigated and established the cause of any accident, the HSO shall report the detail and conclusion of the investigation as soon as practicable.

(3) The accident report shall include details of the counter-measures to prevent any reoccurrence and shall be in the format included in JSSS Annex 1.3 [*Additional Contractor Forms*].

1.25.3 For resumption of work procedures, refer to JSSS 1.14 [*Procedure for Resuming the Works*].

1.26 EMERGENCY RESPONSE PLAN

1.26.1 To the extent reasonably possible, the Contractor shall keep himself fully informed at all times of likely forecasted climatic conditions, from TV, radio and internet and shall be aware when heavy winds, storms, rainfall or snowfall and electrical storms or other adverse climatic conditions are likely and can be reasonably anticipated.

1.26.2 The Contractor shall take all necessary measures to protect Contractor's Personnel, the Works and all Goods for incorporation therein from injury or damage caused by any such adverse climatic conditions, and to avoid, overcome or lessen the effects to a reasonable extent.

1.26.3 The Contractor shall keep all areas of the Site, free from surface water and ground water at all times and by whatever means are necessary. This shall include all newly exposed ground surfaces, excavated areas and/or excavations for structures, piling, trenches, pits, shafts, tunnels and the like, as necessary to ensure:

(1) The safety of all persons entitled to be on the Site, whether engaged in construction operations or otherwise on or in the vicinity of or adjacent to the Site.

(2) The safety and stability of the Works and Goods.

(3) The safety and stability of all ground surfaces, excavated areas and/or excavations for structures, piling, trenches, pits, shafts, tunnels and the like, to prevent landslides due to surface and/or underground water from rainfall and snowmelt, tidal water, ground water and any changes in ground water level, river or stream erosion, human activity and the like.

1.26.4 Where, due to the location of the Site, there is a risk of flooding, earthquake or volcanic activity, the Contractor shall take measures to prevent damage including damage from landslides and consequent injury, damage from such flooding, earthquake or volcanic activity.

Such measures to be implemented shall include:

(1) Avoiding the use of permanent or temporary earth dams, enclosures, containment structures, spoil heaps or the like where the effect of the above described climatic, seismic or volcanic conditions could weaken or destroy such structures and potentially create the consequent risk of danger to all relevant persons, including third parties and property not connected with the Works but potentially affected thereby.

(2) Provision of temporary support to all sides and soffits of excavations or portal of tunnelling of sufficient strength, durability and suitability.

(3) Provision of sufficient temporary drains and drain trenches to assist the flow of water and any further measures to prevent the effect of water entry to the Works, including pumping and provision of power for such measures.

1.26.5 Measures as required by the above shall be described by the Contractor in the Method Statements.

1.26.6 The Contractor shall prepare an Emergency Response Plan as a part of the Safety Plan.

1.26.7 The Emergency Response Plan, shall cover:

(1) Evacuation plan, showing evacuation routes and assembly points.

(2) Emergency communication facilities such as telephones, radios, transceivers,

loudspeakers, sirens, etc. Such facilities shall be inspected by the HSO and maintained at all times so that they can be utilised in any emergency.

(3) Emergency contact system.

(4) Use of existing and available medical and other related facilities.

(5) Emergency stocks of bottled water, lights, ropes, shovels.

The Contractor shall provide and maintain in a state of readiness such equipment described above, that will remain useable in the case of an emergency. Where applicable sufficient back-up power shall be provided when power may be knocked out, long-life batteries, power generators with fuel capacity to allow long term use and the like.

1.26.8 The emergency contact system shall describe measures for quickly establishing locations and methods of contact with a listing of the persons, organisations and departments, that need to be located and contacted in the event of an emergency.

The list shall be posted in a visible location in the Contractor's Site office with a copy in the Employer's and Engineer's Site offices so that all personnel are informed.

The emergency contact list shall include name(s) of the person(s) responsible for making the contact, relevant contact persons, all with their respective telephone numbers and where relevant their radio contact.

The list shall include contact details and any further relevant information for the following parties, and define the extent to which contact is to be made in accordance with the type of emergency:

(1) Employer's Personnel at the Site and also at their respective head office.

(2) Relevant government authorities and agencies, administrative agencies, police stations, ambulance and fire stations, and the like.

(3) Contractor's Personnel at the Site and also at the head office.

(4) Subcontractors personnel and the personnel of any other contractors or suppliers at the Site and also at the head office.

1.26.9 Unless otherwise specified in the Particular Safety Specification, the Contractor shall conduct Emergency Response training based on the Emergency Response Plan at least every six (6) months, including training all personnel at the Site on evacuation plan and emergency contact system.

Details of the training shall be included as a part of the Emergency Response Plan and included with the Safety Plan.

1.26.10 If and when an emergency occurs, the Contractor shall share necessary information amongst prescribed persons on the emergency contact list described above and take appropriate measures including work discontinuation, evacuation of workers, making the Works, all premises and Contractor's Equipment safe, etc., all as circumstances reasonably permit and as instructed by the Engineer.

1.27 CONTRACTOR'S SAFETY COMMITTEE AND REGULAR SAFETY MEETINGS

1.27.1 The Contractor shall create an internal Safety Committee to assist with promoting and maintaining effective health and safety management.

1.27.2 Members of the Contractor's Safety Committee shall include:

(1) Contractor's Representative.

(2) HSO.

(3) Medical and first aid staff.

(4) Contractor's senior site staff.

(5) Contractor's head office safety manager (as necessary).

(6) Subcontractors' representatives, health and safety personnel, site staff.

(7) Representative of labour union, if any.

(8) (If necessary) Representatives of the relevant government authorities and agencies.

(9) Any other necessary personnel.

1.27.3 The HSO shall be the chairperson of the Safety Committee.

1.27.4 The Contractor shall arrange regular Safety Committee Meetings for the purpose of sharing information regarding health and safety management among the Contractor's Personnel:

(1) Frequency of the meetings: At least once a month (until issue of the Taking-Over Certificate of the entire Works).

(2) Agenda:

(a) Accidents, fatalities, injuries occurred in the previous month and measures to be taken to prevent any reoccurrence;

(b) Monthly or weekly schedule of important health and safety matters;

(c) Feedback on the regular safety, coordination and other meetings with the Engineer;

(d) Safety instructions received from the Engineer;

(e) Items to be coordinated with police, fire department and other related organisations;

(f) Compliance and registration requirements under the Laws of the Country;

(g) Safety and health awards, media attention and the like;

(h) Hazards, safety and health problems identified by any members of the Safety Committee;

(i) Effectiveness of existing Safety Plans and suggestions for revision and improvement; and

(j) Other matters.

1.27.5 Report on the Safety Committee Meetings

The HSO shall prepare a report summarising the concerns raised and conclusions of all items listed in the agenda as above.

A copy of this report shall be submitted to the Engineer within seven (7) days after the meeting and a further copy shall be included in the Contractor's monthly progress report.

1.28 ENGINEER'S REGULAR SAFETY MEETINGS

1.28.1 The Engineer will arrange and host a regular safety meeting to be attended by representatives of the Employer and the Contractor for the purpose of sharing information regarding health and safety management among the representatives of the Employer and the Contractor. Parties present shall have the authority to represent the organisation they belong to on health and safety matters:

(1) Frequency of the meetings: Once a month (until issue of the Taking-Over Certificate of the entire Works).

(2) Agenda:

(a) Effectiveness of existing Safety Plans and suggestions for revision and

improvement;

(b) Monthly or weekly schedule of important health and safety matters;

(c) Accidents, fatalities, injuries in the previous month and measures to be taken to prevent any reoccurrence;

(d) Hazards, safety and health problems identified by any members of the Safety Committee;

(e) Status of resolution of previous problems;

(f) Items to be coordinated with police, fire department and other related organisations;

(g) Compliance and registration requirements under the Laws of the Country; and

(h) Safety and health awards, media attention and the like.

1.28.2 Report on the Engineer's Regular Safety Meetings:

(1) The Engineer shall prepare a report summarising the concerns raised and conclusions of all items listed in the agenda as above.

(2) A copy of this report shall be submitted to the Contractor and Employer within seven (7) days after the meetings.

(3) A further copy shall be included in the Engineer's Monthly Report submitted to the Employer.

(4) The Contractor shall act immediately upon any oral instruction which is a consequence of the Contractor's failure to comply with his obligations under the Contract.

(5) The Engineer shall issue a formal instruction for any variation requests.

1.29 PROJECT SAFETY COMMITTEE

1.29.1 On larger Projects with multiple contract packages, if so stated in the Particular Safety Specification, the Employer shall create a Project Safety Committee for the purpose of ensuring mutual understanding and effective implementation of health and safety management of the entire Project.

1.29.2 Unless otherwise agreed, the members of the Project Safety Committee shall include:

(1) The Employer.

(2) The Engineer(s).

(3) The Contractor's Representative(s) and HSO.

(4) Representatives and health and safety officers of all contractors.

1.29.3 The chairperson of the Safety Committee shall be the Employer.

1.29.4 The Project Safety Committee meetings periodically takes place as requested by the Employer. The Contractor shall participate in the same whenever requested by the Employer until issue of the Taking-Over Certificate of the entire Works.

1.29.5 The Employer shall prepare a report summarising the concerns raised and conclusions of all items discussed at the Project Safety Committee Meeting.

1.30 HEALTH AND SAFETY COORDINATION WITH OTHER CONTRACTORS

1.30.1 Refer to GC 2.3 [*Employer's Personnel*] and GC 4.6 [*Co-operation*] regarding the respective obligations and requirements for the Contractor regarding co-operation with:

(1) The Employer's Personnel.

(2) Any other contractors employed by the Employer.

(3) The personnel of any relevant authorities.

In relation to the above, the Employer shall ensure that all of the above personnel and contractors co-operate with the Contractor's efforts and that they take actions similar to those that the Contractor is required to take under relevant parts of GC 4.8 [*Safety Procedures*] and GC 4.18 [*Protection of the Environment*].

The Contractor shall provide sufficient information to the Employer who shall then ensure that all of the above personnel and contractors are fully informed of the Contractor's Safety Plan and that their personnel comply with the Contractor's Safety Plan.

When preparing the Safety Plan, the Contractor shall identify the hazards and assess the risks of all aspects. To do this properly, information (including Method Statements, risk assessments and safety plans) may be needed from other contractors who will be working at the Site. The Employer shall therefore ensure that the Contractor is provided with all such other information as may be requested by the Contractor necessary so that this can be incorporated into the Safety Plan.

When risks arise because of potential interactions between the Contractor and other personnel or contractors (e.g. site transport matters) or a number of contractors are exposed to a common risk (e.g. from the site electrical distribution system), the Employer shall instruct these other contractors to adopt the same principles of risk prevention and control that are applied by the Contractor unless otherwise agreed.

1.30.2 If any other contractors are employed by the Employer and are working on or near the Site of any work, the Employer shall arrange and host Health and Safety Coordination Meetings:

(1) Frequency of the meetings: as and when considered necessary by Engineer.

(2) Unless otherwise agreed, attendees shall include representatives of the Employer, Contractor and any other contractors employed by the Employer and relevant authorities who are concerned with the execution of any work on or near the Site not included in the Contract.

(3) Agenda should relate to coordination among different contractors including for example:

(a) Effectiveness of existing Safety Plans and suggestions for revision and improvement;

(b) Issues, problems and response due to the mutual impact of the work of the Contractor, Employer's Personnel, the Employer's other contractors and the works of any relevant authorities;

(c) Accidents, injuries in the previous period and measures to be taken to prevent any reoccurrence;

(d) Status of resolution of previous problems;

(e) Items to be coordinated with police, fire department and other related organisations;

(f) Compliance and registration requirements under the Laws of the Country;

(g) Safety and health awards, media attention and the like; and

(h) Other matters.

1.30.3 Report on the Health and Safety Coordination Meetings:

(1) The Employer shall prepare a report summarising the concerns raised and conclusions of all items listed in the agenda as above.

(2) This report shall be submitted to the Engineer, Contractor and other attendees within seven (7) days after the meeting.

(3) A further copy shall be included in the Contractor's monthly progress report.

1.31 SAFETY STATISTICS

1.31.1 The Contractor shall collect and compile statistical data for safety performance on the Works in order to permit monitoring of achievement and prevention of reoccurrence of accidents, near-misses and the like, therefore contributing to the improvement of safety on the Works.

1.31.2 Actual statistics shall include the following:

(1) Accident: description, casualties, location, time, type and cause.

(2) Near-miss: description, location, time, type and cause.

(3) Lost-time: lost hours of casualties, duration of discontinuation.

(4) Total working hours for calculation of frequency rate, severity rate and annual incident rate.

(5) Number of users of the first aid station, number of people treated for disease/injury, description of disease/injury, causes.

(6) Number of health and safety staff.

(7) Number of candidates given safety induction and other training.

(8) Number of safety inspections.

(9) Number of detections of non-compliant, unsafe or lack of Contractor's Equipment.

(10) Number of instructions issued for failure to use PPE, or inadequate or ineffective PPE.

(11) Number of Engineer's Instructions issued for work suspension.

(12) Number of HSO instructions issued for work stoppage.

(13) Others.

1.31.3 All data shall be in a format and content given consent by the Engineer.

1.31.4 The data shall subsequently be compiled and included in the Contractor's Monthly Safety Report to be submitted under JSSS 1.33 [*Safety Reports*].

1.32 HEALTH AND SAFETY RECORDS

1.32.1 The Contractor shall keep health and safety records for the following:

(1) Inspection records and checklists.

(2) Meetings for safety and health management.

(3) Monitoring of safety and health management activities.

(4) Health and safety education and training for the Contractor's Personnel.

(5) Health management for the Contractor's Personnel, documents regarding workers' health conditions (such as medical history and medical examination results) shall be stored in compliance with the Laws of the Country.

(6) Work environment records and other records required by JSSS 2 [*General Safety Measures*] and other parts of JSSS.

(7) Record of reports as may be required by government authorities.

(8) Detection of non-compliant, unsafe or lack of Contractor's Equipment.

(9) Instructions issued for unsafe behaviour or unsafe site conditions.

(10) Instructions issued for failure to use PPE, or inadequate or ineffective PPE.

(11) Engineer's Instructions issued for work suspension.

(12) HSO instructions issued for work stoppage.

(13) Others.

1.32.2 All records shall be in a format and content given consent by the Engineer and all shall be made available for inspection by the Engineer.

1.32.3 A summary of the above records shall be submitted to the Engineer as a part of the Contractor's Monthly Safety Report to be submitted under JSSS 1.33 [*Safety Reports*].

1.33 SAFETY REPORTS

1.33.1 The Contractor shall provide regular safety reports to the Engineer to keep him fully informed of compliance with the Safety Plan and all matters of health and safety. Reports shall include:

(1) Daily Safety Report: number of workers, works in progress (outline), statistical results in accordance with JSSS 1.31.2, near-misses/incidents/accidents, safety findings, actions taken, for improvement.

(2) Contractor/HSO and Joint Site Safety Inspection Reports.

(3) Weekly Safety -Report: summary of safety matters of the week.

(4) Monthly Safety Report: summary of safety matters for the month, monthly and cumulative safety statistics. The Monthly Safety Report shall be submitted as a part of the Contractor's monthly progress report, required by GC 4.21 [*Progress Reports*].

1.34 HEALTH AND SAFETY INCENTIVE SCHEMES

1.34.1 The Contractor shall consistently enforce work rules (whether or not an injury or illness is reported) to demonstrate his commitment to creating a culture of safety, not just the appearance of reducing rates. Action should not be taken to penalise any worker for reporting a work-related injury or illness rather than for the purpose of promoting workplace safety.

1.34.2 It is considered that incentive schemes are an important tool to promote an improvement in workplace health and safety and the Contractor is therefore required to develop and implement such health and safety incentive schemes.

1.34.3 It is suggested that workers should be rewarded for reporting near-misses or hazards, as this promotes worker involvement in the health and safety management process.

1.34.4 Consideration should also be given to rate-based incentive schemes which concentrate on reducing the number of reported injuries and illnesses by rewarding workers with certification and/or prizes or bonuses at the end of an injury-free period and which also could reward Operation Leaders or managers based on the elimination of injuries within their respective teams.

1.34.5 Any scheme must however be implemented in such a manner that it does not discourage reporting by workers, such as taking negative action against a worker by withholding a prize or bonus because of a reported injury.

1.34.6 The Contractor shall introduce adequate precautions to ensure that workers feel free to report an injury or illness.

1.34.7 As an alternative to rate-based incentive schemes, incentive schemes that take positive steps to emphasise safety, not just incident rates are often useful such as schemes that reward workers for identifying potentially unsafe, dangerous or hazardous conditions on the Site.

1.34.8 The Contractor shall describe the proposed health and safety incentive scheme in the Safety Plan and shall also inform the Employer and Engineer about the progress and achievement of such schemes through their Monthly Safety Report submitted under JSSS 1.33 [*Safety Reports*].

1.35 CONTRACTOR'S EQUIPMENT, TEMPORARY WORKS, SAFETY EQUIPMENT AND PPE

1.35.1 Contractor's Equipment, Temporary Works, Safety Equipment and PPE to be used upon the Works, (for example electrical systems, welding and cutting equipment, Scaffolding, Formwork and Falsework, etc.) together with all components, systems, materials and equipment, safety equipment and PPE (referred to collectively in this Clause as Contractor's Equipment and Temporary Works), shall be suitable and fit for the purpose for which they are intended.

All shall be used in full accordance with the manufacturer's printed instructions or accepted industry practice and shall be used, stored, handled, assembled, erected, installed, maintained and dismantled by qualified, skilled, specially trained and experienced personnel.

1.35.2 The Contractor shall ensure that all items of Contractor's Equipment and Temporary Works for use upon the Works are inspected by the HSO at the required location before the commencement of any operation or use and regularly inspected thereafter to ensure continued compliance with the foregoing. Following any such inspection, all tested items shall be labelled by the Contractor with clear, durable and weatherproof labels confirming the last/current date of inspection, date of next inspection and signed by the HSO, thereby certifying the items as being safe for use.

If the HSO ascertains at any time that any items are not suitable for use, he shall immediately stop all use of that item, label the item as not being safe for use, stop all work for which that item and any associated items is being used and cease any such work until the situation is corrected by repair, re-testing and certifying. Similarly, the Engineer may issue instructions to stop all use of any item and stop all work for which that item and any associated items is used when it is discovered that the certification is not available or is not currently valid.

1.35.3 The Engineer may also instruct that any Contractor's Equipment and Temporary Works shall be subjected to examination, inspection, measurement or testing, by the Contractor at the expense of the Contractor. The Contractor shall submit the report of such examination, inspection, measurement or testing to the Engineer.

If, as a result, any such Contractor's Equipment and Temporary Works is found to be defective, or otherwise not in accordance with JSSS or the Contract, the Engineer may reject such Contractor's Equipment and Temporary Works by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the defect and ensure by repair/replacement as necessary and re-testing that the rejected item(s) complies with the Contract.

1.35.4 As confirmed in Form JSSS/BSD Bidder's Safety Declaration (refer to JSSS Annex 1.3 [*Additional Contractor Forms*]), the Contractor shall mobilise for use upon the Works:

(1) New or recent Personal Protective Equipment (PPE) and other safety equipment of an international standard, suitable and fit for the purpose for which it is intended, in full working order, complete with all necessary spare parts and consumables, suitable and safe for use on the Works, all to meet with the consent of the Engineer and in sufficient quantities to allow for replacement in the case of being worn-out, lost or damaged.

(2) New or recent Contractor's Equipment and Temporary Works, all suitable and fit for the purpose for which it is intended, in full working order, clean, non-polluting, complete with all necessary spare parts and consumables, suitable and safe for use on the Works.

1.36 HEALTH MATTERS

1.36.1 The Contractor is reminded of his obligations under GC 6.7 [*Health and Safety*] to take all reasonable precautions, at all times to maintain the health of the Contractor's Personnel and ensure that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics. Under other Clauses of the Contract, the Contractor is required to protect the Contractor's Personnel from insect and pest nuisance, and to take other measures to reduce danger to their health.

1.36.2 Healthcare services and facilities at the Site shall be made available free of charge for Contractor's and Employer's Personnel. If so specified in the Particular Safety Specification,

such healthcare services and facilities shall also be made available free of charge for the family members of such Contractor's and Employer's Personnel.

1.36.3 Occupational health care shall be provided by the Contractor and shall include:

(1) Environmental health care with consideration and precautions against asbestos, dust, lead and other metals, gases, hazardous and toxic chemicals, sunlight, engine exhaust emissions, (refer also to JSSS 2.1 [*Working Environment*]).

(2) Measures against noise, frequent or excessive use of vibrating tools.

(3) Avoiding frequent or excessive manual handling of loads, stress and fatigue.

(4) Fitness to work based on the physical mobility and capability of the Contractor's Personnel.

1.36.4 The Contractor shall prepare a Health Care Plan as a part of the Safety Plan including, descriptions and where necessary details or quantities of:

(1) Health care staff to be assigned at the Site.

(2) Provision of anti-mosquito measures including nets, medications and the like in malarial prone areas.

(3) Healthcare services to be provided including lectures and education on health matters.

(4) Healthcare treatment facilities and medicines on the Site together with description of equipment and consumables.

(5) Occupational healthcare proposal.

(6) Temporary water and power supply to maintain use during mains supply failure.

1.36.5 Where the Site is located at an excessive distance from urban areas and/or where there is a lack of immediate availability of healthcare services and facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional healthcare services and facilities at the Site to comply with his obligations as specified in the Particular Safety Specification and as are necessary to fully protect all relevant personnel.

1.36.6 Report of Serious Illness

(1) The Contractor shall inform the Engineer and submit details of any serious illness.

(2) Having investigated and established the cause of any serious illness, the Contractor shall report the detail and conclusion of the investigation as soon as practicable to the Engineer.

(3) The report shall include details of the HSO's recommended counter-measures.

(4) The Engineer is to be consulted on the types of illness for which reports are to be informed.

1.37 DESIGN AND MANAGEMENT OF TEMPORARY WORKS

1.37.1 Unless otherwise specified in the Particular Safety Specification, the Contractor is required to comply with Sections 1 and 2 of BS5975: Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework as management standard with respect to design, erection, use and dismantling of Temporary Works.

1.37.2 An alternative standard is acceptable by reference to JSSS 1.4.5 [*Specified Standards*] providing that the proposed alternative also contains equivalent or higher standards for the management of Temporary Works.

1.37.3 It is to be noted that Sections 1 and 2 of BS5975 constitutes guidance and recommendations and it is not quoted herein as if it constitutes a specification or an integral part of JSSS. The Contractor shall however justify in writing any course of action that deviates from the

recommendations of Sections 1 and 2 of BS5975 and shall submit such justification to the Engineer for his information and consent.

1.37.4 It is to be noted that certain design standards included or referred to in the BS (for example wind loadings), are restricted to use in the United Kingdom, in which case the Contractor shall be assumed to have adopted the design standards applicable in the Country.

1.37.5 The Contractor shall prepare and implement suitable procedures whereby all Temporary Works staff during the course of their work and on completion shall prepare and sign formal records of all Temporary Works under their management and control, thereby certifying that all has been performed, completed and validated in accordance with Sections 1 and 2 of BS5975. All such records shall be in a format and content subject to the consent of the Engineer and all shall be made available for inspection by the Engineer.

1.37.6 Without affecting the Contractor's responsibilities for design of the Temporary Works, the Engineer shall cooperate with the Contractor's Temporary Works staff and shall provide pertinent information about the design of the Permanent Works which may be of relevance and assistance to the Contractor with the Temporary Works design.

The Contractor shall submit Method Statements for any parts of the Temporary Works (including designs and calculations of Falsework) as may be requested by the Engineer for his review in accordance with JSSS 1.9 [*Contractor's Method Statements*]. If the Engineer chooses to review same, this shall not be construed as a check or validation of the Contractor's design or methods.

The Engineer may review Temporary Works design for those parts which he considers to be of vital importance for safety. The Contractor shall cooperate and work with the Engineer on this task to demonstrate that the Contractor has systems in place to ensure compliance with Sections 1 and 2 of BS 5975 or any other acceptable standard in accordance with JSSS 1.37.2.

1.37.7 For further information on monitoring the performance of Temporary Works, refer to JSSS 6.1.3. [*Monitoring ~~the Performance of Temporary~~ ~~Works~~*].

コメントの追加 **[MJD36]:** Heading changed

1.37.8 Irrespective of any legal requirement under the Laws of the Country, all of the Contractor's Temporary Works staff shall have appropriate academic, educational or vocational qualification for Temporary Works coordination, design or supervision as appropriate. Such staff shall also have work experience in construction and in Temporary Works design or supervision as appropriate. The Contractor shall ascertain for himself that all such staff are qualified to perform their duties.

1.38 UNEXPLODED ORDNANCE (UXO)

1.38.1 If there is a possibility that any UXO may exist at the Site, then unless otherwise specified in the Particular Safety Specification, this shall be surveyed and investigated by the Employer and the result of this investigation shall be clearly stated and full information including survey and investigation results shall be provided by the Employer in the Particular Safety Specification.

1.38.2 Unless otherwise specified in the Particular Specification, clearance of UXO shall be undertaken by the Employer and at the cost of the Employer.

1.38.3 Completion of clearance shall be evidenced through the issue by the Employer's specialist remover of a certificate of UXO clearance from the Site. Unless otherwise approved by the Engineer, no work shall commence in affected areas of the Site until the receipt of a copy of this certificate.

1.38.4 Should the Contractor encounter any UXO, after a clearance certificate has been issued in accordance with the above, he shall immediately stop all affected work at the affected area of the Site, clear the area of all Contractor's Personnel, Employer's Personnel and all other persons and notify the Engineer and relevant authorities.

1.38.5 Unless otherwise agreed between Employer and Contractor, the Employer shall then make

further arrangements for removal and disposal, then obtain and issue a further clearance certificate. Work shall resume in the affected areas after the Contractor has received a copy if the further clearance certificate together with any further instructions from the Engineer.

ANNEXES TO CHAPTER 1: GENERAL REQUIREMENTS

Annex 1.1: Definitions and Abbreviations

A1.1.1 The following words and expressions in JSSS relating to the Conditions of Contract and the content of JSSS shall have the definitions stated:

(1) "**GC**" followed immediately by a reference number means respectively General Conditions of Contract Clause or Sub-Clause.

(2) "**Health and Safety Officer**" or "**HSO**" means the Contractor's health and safety officer at the Site to be appointed by the Contractor in accordance with GC 6. 7 [*Health and Safety*]. For the purposes of interpretation under JSSS, the reference to "accident prevention officer at the Site" in GC 6.7 [*Health and Safety*], shall be construed as "Health and Safety Officer at the Site".

(3) "**JICA Standard Safety Specification**" or "**JSSS**" means the document of this title published officially by JICA on their website as may be further modified by the Particular Safety Specification for the Works.

(4) "**Method Statement**" means a document that shows the details of the arrangements, methods and resources that the Contractor proposes to adopt for the execution of the Works or any part of the Works, as referred to in GC 4.1 [*Contractor's General Obligations*] and supplemented by JSSS 1.9 [*Contractor's Method Statements*].

(5) **"Operation Leader" (**also known variously as a "Ganger", "Leading Hand", "Foreman" (working and non-working), "Team Leader", "Superintendent", "Supervisor" and the like) means a member of the Contractor's workforce who through experience, training and testing is deemed by the Contractor to be appropriately qualified, skilled and experienced in their respective trade or occupation to work with, lead and/or supervise the teams of workers, directing them and/or superintending them in the performance of their assigned duties and to ensure their compliance with the Contractor's safety regulations and who can also be referred to within the OSHA definition as a "Competent Person".

(6) "**OSHA**" means the technical requirements of the OSHA standard(s) from the Code of Federal Regulations (29 CFR) published by the Occupational Safety and Health Administration, U.S. Department of Labor.

(7) "**Particular Safety Specification**" means the document that contains the particular additions and modifications to JSSS, necessary to create a precise and relevant specification of the health and safety requirements for the Works.

(8) "**Project**" means the particular Works and services to be implemented by the Borrower and described in the loan agreement, utilising the funds provided by JICA under the terms mutually agreed for that purpose.

(9) "**Safety**" shall also mean "occupational health and safety" and "health and safety".

(10) "**Safety Plan**" means a document (or documents) that contains the overall risk assessments together with the details of all health and safety arrangements, methods and resources that the Contractor proposes to adopt for health and safety management of the entire Works or any Section or part of the Works, as referred to in GC 4.1 [*Contractor's General Obligations*] as supplemented by JSSS 1.7 [*Contractor's Safety Plans*].

(11) "**Safety Specification**" means the document that contains Part 1 [*JSSS*] and Part 2 [*Particular Safety Specification*].

A1.1.2 The following words and expressions in JSSS relating to the technical content of JSSS shall have the definitions stated:

(1) "**Accident Response**" means the requirements for the Contractor's response to an accident at the Site, as further referred to in JSSS 1.24 [*Accident Response Plan*].

(2) "**Blasting**" means blowing-up or breaking apart solid rock with the use of Explosives.

(3) "**Blasting Exclusion Zone**" means an area from which all unauthorised Contractor's Personnel, unauthorised Employer's Personnel and any other unauthorised personnel or the general public are prohibited to enter due to the risk of their being affected by the Blasting Works. Unauthorised personnel in this context shall have the same meaning as that stated in JSSS Clause 2.3.1.

(4) **"Confined Spaces"** means spaces that are not designed for continuous occupation but are provided for persons to enter and perform certain works (including inspection, maintenance and repairs) and that consequently may have limited or restricted means for entry or exit. Due to the likelihood of insufficient ventilation, the Contractor shall be aware of a potentially unhealthy or dangerous environment and he shall be deemed to have investigated and taken measures against such risks in every case.

(5) **"Cofferdam"** means a temporary enclosing wall constructed in water, to permit the enclosed area to be pumped out and used as safe and accessible working space.

(6) **"Dangerous Goods"** means corrosive, flammable, explosive, spontaneously combustible, toxic, oxidising, or water-reactive materials. They must be identified in the workplace (and when being transported) by different coloured 'diamond' symbols. classified on the basis of immediate physical or chemical effects, such as fire, explosion, corrosion and poisoning. An accident involving Dangerous Goods could seriously injure persons and seriously damage property and/or the environment.

(7) **"Dangerous Work"** means Permanent or Temporary Works to be executed by the Contractor in Confined Spaces, Hazardous Areas, or Operational Areas or in the presence of or requiring the use of Hazardous Substances or Dangerous Goods or other work which is especially and potentially dangerous and which requires the use of specialist skills, safety equipment, safety measures and PPE.

(8) "**Designated Person-in-Charge**" or "**DPIC**" means a senior member of the Diving Team who, through qualification, experience and capability is deemed by the HSO to be qualified to be in charge of all aspects of the Diving Operation including those affecting the safety and health of members of the Dive Team.

(9) "**Dive Team**" means Divers, support assistants and workboat crew who are involved in any Diving Operation, including the Designated Person-in-Charge.

(10) "**Diver**" means a worker working in water using underwater breathing apparatus which supplies compressed breathing gas at the ambient pressure.

(11) "**Diving Operation**" means one (1) single diving activity for one (1) Diver or a team of Divers commencing from the time when the first Diver enters the water and extending until the last Diver has left the water, chamber or other environment in which the dive, or any part of the dive, took place and has completed any requisite decompression procedures, including, where it may be reasonably anticipated that this will be needed, any therapeutic recompression. The nature and size of any Diving Operation shall be such that it can be safely supervised by one (1) person.

(12) "**Diving Works**" means a part of the Works consisting of one (1) or more Diving Operations.

(13) "**Earthwork Support**" means the permanent or temporary structural support arrangements to prevent the collapse or weakening of the surfaces of any excavation including for example basement, pit, trench or slope excavation.

(14) "**Elevated Access Structures**" means substantial, elevated, temporary working platforms, usually comprised of structural steel columns, beams, framing and floor decking and used for performing works on Sites with difficult access or restricted space, on steeply sloping or Sites in water.

(15) "**Emergency Response**" means the requirements for the Contractor's response to any Emergency at the Site or Sites, as further referred to in JSSS 1.26 [*Emergency Response Plan*].

(16) "**Explosives**" means any substance or mixture of substances that is manufactured to produce an explosive effect and which term includes any Blasting explosive, Blasting agent and Blasting supplies such as detonators, cords and detonating equipment.

(17) "**Falling Objects**" means objects falling from heights including displaced, dropped, or blown Goods, tools, debris or waste material.

(18) "**Falsework**" means temporary supporting structures used to support parts of the Temporary Works or Permanent Works during construction, until the latter are stable, self-supporting and safe.

(19) "**Formwork**" means temporary containment structures for cast-in-place (poured or pumped) concrete and the immediately supporting members in advance of the concrete achieving sufficient strength to support its own weight and act safely as a structural component.

(20) **"Hazardous Areas"** means areas where there is a risk of explosion due to the presence of flammable or explosive gases, vapours, mists or dusts.

(21) **"Hazardous Substances"** means any substance, whether solid, liquid or gas, that may cause harm to health.

(22) "**Hoisting Equipment**" means Contractor's Equipment such as cranes, hoists, chain-blocks, pulleys and the like which constitute the prime mover that, when used with Rigging Equipment, permits loads to be hoisted or lowered and positioned.

(23) "**Hoisting Operation**" means the selection of Hoisting Equipment appropriate to the purpose, preparation of Method Statements and Safety Plans and safely implementing the hoisting and placing of loads in position.

(24) "**Operational Area**" means an area in a functioning process, treatment, manufacturing or like facility where the Contractor is required to perform work while the Employer is continuing operations.

(25) "**Other Properties**" means buildings, structures, ground surfaces and substrata, paved areas, roads, footpaths, fences, railways, waterways, drainage, utilities and other services or the like or any other property on the Site or outside the Site which may be in some way affected by the execution of the Works.

(26) "**Personal Fall Arrest System**" or "**PFAS**" means a fall protection system that is designed to arrest a worker in a fall from a working level.

(27) "**Personal Fall Restraint System**" or "**PFRS**" (also referred to as a "Positioning Device System") means a fall protection system that is designed to restrict the movement of workers, preventing them from reaching the edge of any working area and therefore eliminating the risk of a fall.

(28) "**Personal Protective Equipment**" or "**PPE**" means equipment that is worn by the person to minimise exposure to hazards that cause serious workplace injuries and

illnesses, which may result from Falling Objects, excessive noise, dust, contact with chemical, radiological, physical, electrical, mechanical, or other workplace hazards.

(29) "**Rated Capacity**" (referred to occasionally in OSHA and elsewhere as "Safe Working Load") means the maximum load capacity for items of Contractor's Equipment and Temporary Works, as officially recommended by the manufacturer. The Rated Capacity may be dependent upon the configuration and conditions of use (e.g. length, angle of boom and the like).

(30) "**Rigger**" means a competent person who is certified by the HSO as suitable for assignment to Hoisting and Rigging in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*].

(31) "**Rigging Equipment**" means the ropes, webbing, chains and slings together with all associated accessories such as hooks, hoisting points, shackles, etc. that, when used with Hoisting Equipment, permits loads to be hoisted or lowered, and positioned.

(32) "**Safety Belt**" means a sufficiently substantial strap to be secured about the waist for attaching to a lanyard or line to restrain the movement of workers and prevent them from reaching locations from where they may be at risk of falling.

(33) "**Safety Harness**" means a sufficiently substantial harness to be secured about the body for attaching to a lanyard, lifeline and deceleration device to safely arrest and support any worker during a fall.

(34) "**Scaffold**" or "**Scaffolding**" means a temporary structure or structures that provide access on or from which persons work or to support Goods.

(35) "**SCUBA Diving**" means a diving mode independent of surface supply in which the Diver uses open circuit self-contained underwater breathing apparatus.

(36) "**Skill Training"** means additional training to be provided by the Contractor for the Contractor's Personnel to develop and improve their trade skills in performing their work at the Site and shall include OJT and theoretical training in accordance with JSSS 1.21 [*Skill Training*]. Such training shall also include examining and testing by the Contractor and certification of attainment in such skills.

(37) "**Spotter**" means a member of the Contractor's Personnel who is generally responsible for warning other Contractor's and Employer's Personnel and other persons and keeping them away from working operations and areas, for assisting drivers of trucks and operators of Contractor's Equipment in positioning their vehicles and equipment particularly when reversing, positioning or hoisting, and such further duties as are assigned to them in JSSS 2.4 [*Spotters*].

Any reference to a "Spotter" in JSSS shall also be deemed to include a reference to a banksman or flagman.

(38) "**Surface-Supplied Air Diving**" means a diving mode in which the Diver is supplied at the dive location with a piped supply of compressed air for breathing.

(39) "**Trade Effluent**" means any liquid waste (effluent) that is discharged from premises being used for a business, trade or industrial process, other than surface water and domestic sewage.

(40) "**Unexploded Ordnance**" or "**UXO**" means unexploded bombs, or explosive remnants of war or explosive weapons(such as bombs, shells, grenades, land mines, naval mines, cluster munition, and the like) that did not explode when they were employed and still pose a risk of detonation, sometimes long after they were used or discarded.

(41) "**Working Platform**" means a platform on or within a Scaffold that is intended and designed to support persons or Goods.

A1.1.3 The following abbreviations of technical terms shall have the meanings stated:

AED	Automatic External Defibrillator
BMGV	Biological Monitoring Guidance Values
CPR	Cardiopulmonary Resuscitation
GFCI	Ground Fault Circuit Interrupter
ODA	Official Development Assistance
OJT	On the Job Training
PFAS	Personal Fall Arrest System
PFRS	Personal Fall Restraint System
PPE	Personal Protective Equipment
RCD	Residual Current Device
TBM	Tool Box Meetings
TWA	Time Weighted Average
WEL	Workplace Exposure Limits

A1.1.4 The following abbreviations of standards, codes and the like shall have the meanings stated:

ACI	American Concrete Institute
ANSI	American National Standards Institute
ASHTO	American Association of State of Highway Transportation Officials
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials.
BS	British Standard
BS EN	British Standard European Norm
HSE	UK Health and Safety Executive
ISO	International Organization for Standardization
ILO	International Labour Organization
JIS	Japanese Industrial Standards

Annex 1.2: Content of Bid Stage Safety Plan

A1.2.1 This Annex lists the required content for the Bid Stage Safety Plan as referred to in JSSS 1.7 [*Contractor's Safety Plans*]. Unless otherwise specified in the Particular Safety Specification, the Contractor shall follow this format and structure in the Bid Stage Safety Plan. The same format and structure shall be used later for the Baseline Safety Plan but with the content developed as necessary to show the required detail.

A1.2.2 The Bid Stage Safety Plan shall be an outline plan but it must cover each of the items listed below with sufficient detail provided to demonstrate that the Bidder understands the requirements and indicates the Bidder's intentions, so that this can be understood and properly evaluated.

(1) Description of the Works

A description of the Works supported by overall layout plan(s) to provide a clear understanding of the overall layout and content of the Works and showing main construction items and areas, roads, Site access and egress locations, working areas, storage areas, temporary offices, laydown areas, warehouses and like facilities and including a summary of principal work items and significant quantities, etc.

(2) Bidder's Corporate Policy on Health and Safety Management

A description of the Bidder's corporate health and safety management policy covering the aims and intentions for improving the level of health and safety. The policy shall include a description of the purpose of health and safety (prevention of occupational accidents, maintenance of physical and mental health of workers, etc.), a description of the basic company policies on risk assessment and health and safety management.

(3) Health and Safety Management System, Responsibility and Authority of Bidder's Personnel

A description of the health and safety management organisation at the Site headed by the Bidder's Health and Safety Officer (HSO) and showing the approximate numbers, responsibilities and authority of any other Contractor's Personnel involved in health and safety management at the Site.

A description of the responsibilities and authority of the Bidder's head office health and safety personnel together with the communication procedures for contact and support for the Site safety teams.

(4) Health and Safety Laws

A list of Laws (including all standards) of the Country which require the Bidders compliance for the health and safety of his workers and for the health and safety management of the Works. If the Contractor considers any parts to be superseded by JSSS then the relevant Clause number of JSSS shall be inserted.

(5) Bidder's Safety Management System

Refer to JSSS 1.5 [*Contractor's Safety Management System*].

Describe the scheme that the Bidder is proposing and how he intends to implement same.

(6) Temporary Works

Refer to JSSS 1.37 [*Design and Management of Temporary Works*].

A Safety Plan for Temporary Works listing the principal items, describing the content, and specifying the outline of safety measures to be applied to ensure compliance with the requirements.

(7) Temporary Facilities on Site

The plan shall include a description of the general health and safety rules (e.g. smoking areas, traveling speed on Site, cleanliness, tidiness, latrines, wash rooms, shelters, etc.).

(8) Safety Measures for Contractor's Design of the Permanent Works

If, under GC 4.1 [*Contractor's General Obligations*], the Contract specifies that the Contractor shall design any part of the Permanent Works, the Bidder shall provide a description of the arrangements for controlling risks arising from such design of the Permanent Works.

(9) Safety Plan for the Works

A Safety Plan for the whole of the Works with separate parts provided for each part of the Works, including descriptions of the likely risks and measures for preventing accidents on the Site.

(10) Safety Plan for Diving Works

(Where Diving Works are included in the scope)

Refer to JSSS 10 [*Diving Works*].

A Safety Plan in accordance with the requirements of JSSS 10, including a description of the arrangements at the Site of the Diving Works for emergency recompression/decompression.

(11) Safety Plan for Dangerous Work.

Refer to JSSS 1.22 [*Dangerous Work*].

A listing of any Dangerous Work which will be encountered on the Site and general details of the Safety Plan for such Dangerous Work by reference to JSSS Annex 1.1 [*Definitions and Abbreviations*] and GC 4.1 [*Contractor's General Obligations*].

(12) Permit to Work System

Refer to JSSS 1.23 [*Permit to Work System – Dangerous Work*].

A listing of all high-risk areas of the Works that shall be subject to the Permit to Work System together with a description of proposed procedure.

(13) Safety Measures for Contractor's Equipment

Refer to JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

A description of the procedures for inspecting and maintaining the Contractor's Equipment together with all spare parts, including inspections prior to shipment, after arrival at the Site and during use to ensure that all Contractor's Equipment at the Site is maintained in a safe, efficient, non-polluting and acceptable condition. It shall include a general description of all regular maintenance and repair activities.

(14) Proposed Health and Safety Incentive Scheme

Refer to JSSS 1.34 [*Health and Safety Incentive Schemes*].

A description of the Proposed Health and Safety Incentive Scheme, designed to encourage conscious consideration of health and safety by Contractor's Personnel and to reward improvement.

(15) Safety Information Sharing and Communications Policy

A description of the information sharing and communication systems for health and safety within the organisation of the Contractor and between the Contractor and Employer, Engineer and relevant government agencies, etc. Reference shall be made to the various health and safety meetings described in JSSS.

A description of safety management activities for Contractor's Personnel shall be included together with the method for giving and receiving feedback and opinions regarding health and safety.

(16) Health and Safety Equipment, Facilities and Personal Protective Equipment (PPE)

Refer to JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

A description of the intended policies for the deployment of safety equipment, facilities and PPE to reduce health and safety risks, detailing the items and methods for providing and replacing (when worn, lost or damaged) general PPE and the use of additional PPE for particular working locations, environments and conditions.

(17) Site Inspection Plan

A description of the methods for Site inspections by the HSO, types of inspection and frequency.

The description shall also include the methods for reporting, recording and utilising results and also for posting warnings, no entry notices, giving instructions and stopping work.

(18) Site Security

A description of the proposed Site security methods explaining how access to the Site by third parties, neighbours, nearby residents and any trespassers upon the Site will be prevented or (if and when applicable) permitted.

The description shall include the provision and control of entry and exit gates, barriers etc., security posts, security patrols and any other measures to reasonably ensure the security of the Site.

(19) Policy for Preventing Traffic Accidents

A description of the measures to be implemented for the prevention of traffic accidents on the public roads outside the Site and on roads and all other trafficked areas within the Site.

A description of the measures to be implemented to prevent workers riding in the back of pick-ups or trucks, or boarding or alighting from them near the Site, compulsory wearing of seat belts.

(20) Reporting Procedure for Unsafe Conditions and Behaviour

A procedure for the reporting of unsafe conditions and unsafe behaviour on the Site (including near-misses) together with improvement actions including instructions, implementation and the recording of improvement measures.

(21) Accident Response Plan

Refer to JSSS 1.24 [*Accident Response Plan*].

The Plan shall describe the facilities to be provided and also cover the preparation and submission of the accident report, describing when an accident report will be prepared and submitted, the method of investigation of causes, planning and implementation of preventive measures against recurrence.

(22) Health Care Plan

Refer to JSSS 1.36 [*Health Matters*].

A description of the proposed facilities, furniture and equipment for rest stations, restroom, dining facilities, canteens, sanitary facilities, sports and leisure facilities, shower facilities, changing room etc.

A health care plan with services and facilities for maintaining the health and occupational health of all Contractor's Personnel.

(23) Environmental, Temporary Works and Structural Monitoring Plans

Refer to JSSS 2.1.7 [*Monitoring and Records*].

A description of the proposed monitoring equipment, instruments, Contractor's Personnel and methods for monitoring and control of the working environment, the performance of the Works and the avoidance of damage to Other Properties.

(24) Fire Response Plan

Refer to JSSS 2.8 [*Fire Prevention*].

Details of the fire prevention services to be provided at the Site.

(25) Emergency Response Plan

Refer to JSSS 1.26 [*Emergency Response Plan*]

Details of the Emergency Response Plan.

(26) Monitoring and Review of Health and Safety Management Activities

The procedures for monitoring and reviewing the purpose, method, timing, utilisation of results, development, etc. of health and safety management activities such as safety inspections, TBM, 5S activities (refer to JSSS 1.15 [*Contractor's Safety Management Activities*]).

(27) Safety Induction Training

Refer to JSSS 1.20 [*Safety Induction Training*].

An outline description of the required safety induction training for all proposed health and safety training plans, describing methods, facilities, time, teaching materials, policies for selecting trainers, etc. and covering safety induction.

Details of special training required for Dangerous Work shall also be included.

(28) Skill Training

Refer to JSSS 1.21 [*Skill Training*].

An outline description of the proposed Skill Training plans for local counterpart Operation Leaders, describing OJT and classroom components, facilities, participants, time, teaching materials, policies for selecting trainers and the counterparts.

(29) Legal Requirements

A description in brief with references to the legal requirements and remedies in the Country for injuries and death at work and for persons affected by illness, together with a summary of any workmen's accident compensation insurance or stating that there are no such legal requirements if that is the case, and any other legal obligations and remedies.

Annex 1.3: Additional Contractor Forms

Attached Forms:

Form JSSS/BSD – Bidder's Safety Declaration

Form JSSS/SAR – Sample Accident Report

Form JSSS/BSD – Bidder's Safety Declaration

[This form is to be inserted in the Bidding Documents after the existing Form-ACK, with new page number, renumbering existing pages appropriately and inserting suitable reference in the Table of Forms]

I, *[insert name and position of authorised signatory]*, being duly authorised by *[insert name of Bidder/members of joint venture ("JV")]* (hereinafter referred to as the "Bidder") to execute this Form JSSS/BSD, hereby declare our commitment to comply with the health and safety requirements of the Contract.

The Bidder declares, that if selected to undertake the Works, he will ensure that the Site is established and maintained as a healthy and safe workplace for the Contractor's Personnel, the Employer's Personnel and all other persons entitled to be thereon or that may be affected by operations thereby.

The Bidder hereby declares that after investigation and research of resources within the Country, he has given full and careful consideration and fully accepts the need and has made full allowance for the importation, the use upon the Works and subsequent re-export in accordance with the Contract of all required Contractor's Equipment, Temporary Works, PPE and all other safety resources necessary to maintain the international level of health and safety upon the Works.

The Bidder declares that he will mobilise for use upon the Works:

1. New or recent PPE and other safety equipment of an international standard, suitable and fit for the purpose for which it is intended, in full working order, complete with all necessary spare parts and consumables, suitable and safe for use on the Works, all to meet with the consent of the Engineer and in sufficient quantities to allow for replacement in the case of being worn-out, lost or damaged, and
2. New or recent Contractor's Equipment and Temporary Works, all suitable and fit for the purpose for which it is intended, in full working order, clean, non-polluting, complete with all necessary spare parts and consumables, suitable and safe for use on the Works.

The Bidder further declares that he shall:

1. Carry out regular and thorough safety inspections, find and correct any health and safety problems on the Works, primarily by trying to eliminate or reduce hazards through making feasible changes in working conditions rather than relying on PPE to reduce risks.
2. Employ workers with appropriate skill, educational or vocational qualification, experience and capability.
3. Fully inform workers about hazards.
4. Provide health and safety training to all Contractor's Personnel, any Subcontractors, suppliers and others for whom the Contractor is responsible, the Employer's Personnel and all other persons who are entitled to be on the Site, in a language and vocabulary they can understand.
5. Keep accurate records of work-related injuries and illnesses.
6. Perform tests in the workplace, such as air sampling as required by the Safety Specification.
7. Provide required new PPE at no cost to workers and ensure that this is used properly, kept in good condition and replaced in the case of being worn-out, lost or damaged.
8. Assign only workers who, in consideration of health, physical condition and age are suited to the operations to which they are assigned.
9. Provide eyesight, hearing and mobility examinations and other medical tests required by the Contract.

10. Post injury and illness information and data where workers can see them.
11. At occurrence of any accident, promptly inform the Engineer and thereafter submit details of the accident within twenty-four (24) hours after its occurrence.
12. Not retaliate against workers for using their rights under the Laws of the Country.

The requirements of this declaration shall apply fully to all of the Bidder's proposed Subcontractors, suppliers and specialists engaged by the Bidder on the Works, for whom the Bidder shall remain fully responsible.

The Bidder also affirms that if the Bid is successful, the Health and Safety Officer, named below and also included in Bidding Form, Form PER -1: Proposed Personnel, unless otherwise required by the Bidding Documents, shall be assigned from the Commencement Date, full-time upon the Site and shall not be replaced or substituted at any time except with the consent of the Engineer.

If the Bid is accepted the Bidder agrees that this Declaration shall form a part of the Contract, at and from which time all references to "Bidder" shall be construed as references to "Contractor".

Signed:	Signed:
_____	(Bidder's Proposed Health and Safety Officer)
(Bidder's Official Representative)	Or
	Bidder's Head Office Health and Safety Manager*)
Name:	Name:
_____	_____
Date: _____	Date: _____

*(*Delete as applicable)*

Form JSSS/SAR – Sample Accident Report

[The form is to be completed by the Contractor, submitted to the Engineer when applicable and in accordance with JSSS 1.25 [Measures at the Time Accidents Occur]

CONTRACT INFORMATION:	
1) Name of Project:	
2) Project Reference Number： （e.g. L/A No.）	
3) Contract Number:	
4) Package Description:	
5) Employer: (name and nationality)	
6) Contractor: (name and nationality) (If casualty(ies) is(are) belonging to Subcontractor) Subcontractor: (name and nationality)	
7) Engineer: (name and nationality)	
8) Press Report about the Accident (Name of Media, Date, and Copy of Report to be attached)	

(above to be inserted before all reports)

FIRST REPORT INFORMATION:	
1) Date and time of accident occurrence (local time):	
2) Date and time of first verbal report to Engineer:	
3) Exact location of accident occurrence:	
4) Brief background and apparent cause:	
5) (i) Number of casualty(ies)/ (ii) Information of casualty(ies) (Nationality, Age, Sex, Position, Experience Year)/ (iii) Description of injuries incurred	
6) Physical damages to the Works, Site and any properties of the third parties	
7) Present medical status of casualty(ies):	
8) Present work status:	
9) List attached information (e.g. Layout and sketch drawings, photographs, notes and report):	
10) Accident Report Submission Date	

SUBSEQUENT REPORT INFORMATION (POST-INVESTIGATION):	
1) Cause(s) of the accident:	
2) Counter-measures proposed by the Contractor to avoid recurrence of similar accidents and risks:	
3) Number of reported accident(s) occurred in the past one (1) year in the same Contract Package as the accident occurred:	
4) Number of reported near misses occurred in the past one (1) year in the same Contract Package as the accident occurred:	
5) Other Information:	

Report Prepared by: (name): _____ (sign) : _____ Report Submission Date(s) _____ Time: _____	Contractor's Health and Safety Officer (HSO)
Receipt acknowledged by: (name): _____ (sign): _____ Report Receipt Date(s) _____ Time: _____	Engineer

(above to be inserted with detail and signatures at end of each report)

CHAPTER 2: GENERAL SAFETY MEASURES

2.1 WORK ENVIRONMENT

Contractor's Personnel shall be provided with a safe and healthy occupational environment. The Contractor shall implement all necessary measures to avoid the creation of and/or any contact with Hazardous Substances, intense noise, heat, cold or similar and potentially harmful conditions or to provide protection against such conditions.

2.1.1 Hazardous Substances

(1) Definitions

Refer to the definition of Hazardous Substances in JSSS Annex 1.1 [*Definitions and Abbreviations*].

(2) Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any Hazardous Substances either existing on the Site, used in or encountered on the Works, the Contractor shall take necessary measures for work environment complying with EH40/2005 Workplace Exposure Limits, (third edition published 2018), issued by HSE, including monitoring such substances to ensure that the Short Term and Long-Term exposure limits in HSE Table 1 are not exceeded.

2.1.2 Dust

(1) Dust

Dust of any kind when present at a concentration in air shall not be equal to or greater than:

(a) 10 mg/m3 (8-hour Time Weighted Average: TWA) of inhalable dust; or

(b) 4 mg/m3 (8-hour TWA) of respirable dust.

(2) Prevention

(a) The Contractor shall prevent dust emission, by keeping the source moist and covering dust creating areas and materials with suitable dust-proof sheeting; and

(b) The Contractor shall provide all necessary Contractor's Equipment and Temporary Works to achieve this including water-bowsers, spraying equipment, extract ventilation and filtration equipment.

(3) PPE

(a) If, in the opinion of the HSO, it is not reasonably practicable to reduce dust to acceptable levels, PPE (Breathing Apparatus) shall be provided for all relevant Contractor's Personnel; and

(b) For details of PPE refer to JSSS 2.9.1 [*PPE*].

(4) Asbestos

(a) The Contractor shall be aware that asbestos causes occupational fatalities. It is commonly found in older buildings frequently in ceiling and floor cavities, insulation, sprayed coatings, floor tiles and composites, asbestos-cement sheets and roofing felt;

(b) If the scope of the Works requires removal of any of the above materials then the Contractor shall check for asbestos content, then remove and dispose of such materials in compliance with L143 Approved Code of Practice and guidance, for Managing and Working with Asbestos (second edition published 2013), issued by HSE; and

(c) If the Particular Safety Specification specifies that asbestos may exist at the Site and that the Contractor is responsible for the removal and disposal or if it is discovered during the execution of the Works and the Contractor is instructed by the Engineer to remove it, then the Contractor shall take measures in accordance with the requirements of JSSS 1.22 [*Dangerous Work*]; and comply with L143 Approved Code of Practice and guidance, for Managing and Working with Asbestos (second edition published 2013), issued by HSE; for the controlled safe removal and disposal of asbestos.

コメントの追加 **[MJD37]:** Suggest "s" is necessary

コメントの追加 **[SS38R37]:** I agreed to add "s".

2.1.3 Poor Ventilation

(1) The Contractor shall inspect and carry out monitoring to ensure that all working areas have adequate and healthy natural ventilation.

(2) If any areas do not have adequate and healthy natural ventilation, the Contractor shall provide suitable and efficient mechanical ventilation systems with fans, ducting and all associated devices and services to improve the working environment to acceptable safe levels.

(3) If this is not completely possible then PPE (breathing apparatus) shall be used in accordance with the requirements of JSSS 2.9.1 (8) [*Respiratory Protection Equipment (RPE)*].

(4) The Contractor shall generally prohibit the use of internal combustion engines in internal areas. When the use of such engines is unavoidable, the Contractor shall provide exhaust systems which safely and efficiently collect, contain and expel exhaust gases to external areas and provide additional adequate ventilation.

2.1.4 Noise

(1) Compliance Standards

(a) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for noise exposure and control complying with OSHA 1926.52 [Occupational noise exposure]; and

(b) The Contractor shall provide equipment such as, sound level meters, noise dosimeters, or octave band analysers to determine what sound levels exist and whether they are within the levels in Table D-2 or not.

(2) Preventive Measures

To prevent noise damage to Contractor's Personnel, which may occur when noise levels exceed 90 dBA (referred to as "intense noise" in JSSS), or if for any reason sound levels cannot be determined as above the Contractor shall:

(a) Reduce sound levels through feasible administrative or engineering controls to within the levels of Table 2.1.1 [*OSHA Table D-2: Permissible Noise Exposures*], if at all possible:

Table 2.1.1: OSHA Table D-2: Permissible Noise Exposures

Duration per day, hours	Sound level dBA slow response	Duration per day, hours	Sound level dBA slow response
8	90	1½	102
6	92	1	105
4	95	½	110

3	97	¼ or less	115
2	100		

(b) If such controls are not possible or if they fail to reduce sound levels within the levels of OSHA Table D-2, provide PPE (Ear Protection) for relevant Contractor's Personnel as specified in JSSS 2.9.1 (7) [*Ear Protection*] in consideration of the noise level and length of noise exposure at the working area in accordance with the provisions of the OSHA Standard;

(c) Post warning signs at the working area to make all Contractor's Personnel aware that ear protection must be worn; and

(d) In all cases where the sound levels exceed the values shown OSHA Table D-2, a Continuing Effective Hearing Conservation Program specified in (3) below shall be implemented.

(3) Hearing Conservation Program

(a) The Contractor shall implement a hearing protection and conservation program whereby noise exposure levels are monitored in order to accurately identify any Contractor's Personnel that are exposed to noise at or above 90 dBA averaged over 8 working hours, or an 8-hour time TWA;

(b) Further to JSSS 2.1.4 the Contractor shall comply with OSHA 1910.95 [Occupational noise exposure], in respect of exposure to impulsive or impact noise;

(c) Exposure to impulsive or impact noise shall not exceed 140 dBC peak sound pressure level; and

(d) The Contractor shall monitor all workers whose noise exposure is equivalent to or greater than a noise exposure received in eight (8) hours where the noise level is constantly 85 dBA. The exposure measurement must include all continuous, intermittent, and impulsive noise within an 80 dBA to 130 dBA range and must be taken during a typical work situation. The Contractor shall choose the monitoring method that best suits each individual situation.

2.1.5 Further Requirements for Dangerous Work

Further to the requirements of JSSS 1.22 [*Dangerous Work*] and in relation to work in Confined Spaces, Hazardous Areas, or Operational Areas or in the presence of or requiring the use of Hazardous Substances or Dangerous Goods or other work which is especially and potentially dangerous, requiring the application of special skills, safety equipment, safety measures and PPE, the Contractor shall establish systems and procedures to ensure the safety of all Contractor's Personnel engaged upon or supervising or managing such Dangerous Work, and for this purpose the Contractor shall:

(1) Measure the concentration of oxygen, hydrogen sulphide, carbon dioxide, carbon monoxide, chlorine, chlorine dioxide, Trade Effluent and any other potentially harmful materials, gases and chemicals, or other work environment items before starting any work.

(2) Safely isolate the supply and flow of any Trade Effluent, or other potentially harmful materials, gases and chemicals during the period of any work and safely reconnect or continue same after the work is finished.

(3) Improve and maintain the work environment for example by mechanical ventilation and filtration if the result of the work environment measurement in (1) above violates the limits specified in this JSSS 2 [*General Safety Measures*].

(4) For further information on the removal and disposal of Hazardous Substances refer to

コメントの追加 **[SS39]:** 8. (32)

コメントの追加 **[SS40]:** No. 32
Unit shall be revised as follows:
140 shall be with dBC and others shall be with dBA.

コメントの追加 **[MJD41R40]:** No comment will change

コメントの追加 **[SS42R40]:** Confirmed.

JSSS 1.22 [*Dangerous Work*].

(5) For further information on prohibition of entry to areas where Dangerous Work is being performed refer to JSSS 2.3 [*Prohibition of Entry*].

2.1.6 High and Low Temperatures and Humidity

(1) To avoid health hazards due to excessively hot, cold or humid working environments, the Contractor shall improve the work environment for all Contractor's Personnel by:

(a) Providing temporary covers and shade to protect workers from rain, hail, snow, sunlight and reflection from the surrounding wall and ground;

(b) Providing protection from any heat or cold source and provide adequate ventilation, heating or air conditioning for indoor working;

(c) Where permitted by the Engineer in hot climates, carrying out work during the night when temperatures and humidity are lower;

(d) Providing drinking water and supplement that allow salt replenishment at the work place;

(e) Providing a rest station with heating, air conditioning or shade near the work place, or providing other facilities equipped with accommodation that allow personnel who fall ill to lie down and recover;

(f) Allowing work breaks and reducing excessive and continuous working times; and

(g) Allowing an initial acclimatisation period for Contractor's Personnel to become used to the heat or cold.

(2) The Contractor shall ensure that workers wear moisture-permeable and loose-fitting clothing in hot climates and suitably warm, insulated and waterproof clothes in cool or cold climates.

(3) If any undesirable conditions are detected, the Contractor shall take appropriate measures to correct the situation, allowing Contractor's Personnel to rest or temporarily stop the work until the conditions improve.

(4) The Contractor shall monitor the health of Contractor's Personnel before and during the work, allowing Contractor's Personnel to take a rest and/or rehydrate as necessary and take further action if any additional abnormalities are observed.

2.1.7 Monitoring and Records

(1) The Contractor shall monitor the working environment and prepare regular daily, weekly and monthly records of dust, noise, air and water quality, inadequate natural ventilation, rainfall, snowfall, temperatures, humidity, wind speed and direction regularly ~~throughout the Time for Completion of the Works~~ ~~until the Taking-Over Certificate is issued for the entire Works or any relevant part of the Works.~~ until completion and taking over under GC 10 [*Employer's Taking Over*].

(2) The procedure for preparation and submission of such records shall be as stated in JSSS 1.32 [*Health and Safety Records*].

(3) The Contractor's monitoring and recording shall also cover:

(a) The pre-existent conditions for all periods of Dangerous Work;

(b) Dust at work places where excessive dust and waste material such as dirt, rocks, minerals, metals, carbon, cement, etc. is generated;

(c) Noise levels at work places that generate intense noise;

(d) Ventilation volume, temperature and concentration of carbon dioxide, carbon monoxide, oxygen, hydrogen sulphide, other toxic or dangerous gases at work

コメントの追加 **[SS43]:** No. 33
JICA commented this shall be revised to "until the Taking-Over Certificate" or " until the Taking-Over Certificate is issued for the entire Works or any relevant part of the Works" as explained in the attached paper.
NK agreed to this revision.

コメントの追加 **[MJD45R44]:** No comment on taking-over earlier than the Time for Completion.

As revised wording is required it would appear more simple to state "until completion and taking over under GC 10 [*Employer's Taking Over*].

コメントの追加 **[SS44]:** 9. (33)

コメントの追加 **[SS46R44]:** I agree to your suggestion.

places including tunnels and deep pits and Confined Spaces; and

(e) Illuminance at work place and walkways.

(4) The above monitoring shall be conducted separately from the environmental monitoring that may be required by the Laws of the Country and any environmental monitoring that may be separately specified in the Contract.

(5) For the following measurement items, if the following limits are violated, the Contractor shall take the measures prescribed in JSSS 1.22 [*Dangerous Work*], JSSS 2.1.5 [*Further Requirements for Dangerous Work*] and JSSS 2.3 [*Prohibition of Entry*].

(a) Values of limits of measurement items:

(i) Oxygen concentration less than 19.0% and more than 23.5%;

(ii) Hydrogen sulphide concentration more than 10 ppm (short-term exposure limit) or 5 ppm (long term exposure limit);

(iii) Carbon dioxide concentration more than 15,000 ppm (short-term exposure limit) or 5,000 ppm (long term exposure limit); and

(iv) Other Hazardous Substances either existing on the Site, used in or encountered on the Works: values of limits for other substances given in EH40/2005 Workplace Exposure Limits (third edition published 2018), issued by HSE, Table 1.

(b) Combustible gas and vapor concentration: in excess of 10% of the lower limit of flammability.

(6) The Contractor shall also monitor any vibration, settlement and other adverse effects arising out of the execution of the Works to ascertain if these are causing any adverse effect to the Works or to Other Properties whilst ensuring that no damage or weakening is caused.

(7) Monitoring shall be accomplished by the Contractor through regular inspection, measurement, survey, instrument monitoring and recording as determined by the nature and scope of the Works taking account of any additional requirements which may be specified in the Particular Safety Specification.

(8) Works that require monitoring shall include the following where any risk of damage is perceived by the HSO or Engineer:

(a) Excavation Works;

(b) Foundation Piling Works;

(c) Ground improvement;

(d) Temporary ground dewatering;

(e) Temporary Works such as major items of Earthwork Support, Cofferdams and the like; to demonstrate that they are performing safely, to the designed limits and for the intended purpose;

(f) ~~Other parts of the Works required to evidence the Contractor's compliance with the Contract; and~~

(g) ~~Other parts of the Works which may be specified in the Particular Safety Specification.~~

(h) Other parts of the Works which may be specified in the Contract or the Safety Plan.

(9) The Contractor shall prepare a monitoring plan as a part of the Safety Plan or Method Statement for the above Works which shall describe:

コメントの追加 **[SS47]:** 10. (34)

コメントの追加 **[SS48]:** No. 34
JICA commented if (g) is revised to "the Contract", difference between (f) and (g) is not clear. Therefore, JICA proposed to combine (f) and (g) as follows:

"other part of the Works which may be specified in the Contract or the Safety Plan"

NK agreed to this revision.

コメントの追加 **[MJD49R48]:** No comment will change

コメントの追加 **[SS50R48]:** Confirmed.

(a) The Contractor's proposed monitoring criteria for vibration, settlement and all other potential effects of the Works, which by the Contractor's own calculations will ensure that no damage or weakening is caused to Other Properties;

(b) The types, locations and numbers of monitoring instruments and other equipment;

(c) The measurement frequency and recording methods; and

(d) The countermeasures to be applied when the actual measured values are close to or exceed the various minimum, intermediate and maximum criteria.

(10) The Contractor shall:

(a) Provide and maintain all survey equipment, monitoring and recording equipment to provide comprehensive, accurate and contemporary or live data with records, showing the performance characteristics of the Works;

(b) Provide qualified staff to perform the monitoring;

(c) Maintain and calibrate the monitoring instruments and equipment as necessary throughout the execution of the Works;

(d) Perform survey and monitoring on a regular basis throughout the execution of the Works;

(e) Confirm the occurrence and extent of any adverse effect arising out of the execution of the Works by means of regular inspections of all Other Properties;

(f) Take the measures prescribed when necessary to comply with the Contractor's obligations, propose remedial measures and implement such measures after receiving the consent of the Engineer;

(g) Evaluate the measurement results and modify the monitoring criteria as necessary; and

(h) Submit an evaluation report if necessary with any changes to the Safety Plan for Works to the Engineer before proceeding with the Works.

(11) Requirements for instrumentation systems shall be as follows:

(a) The Contractor shall select instruments and measurement methods that meet the purpose of the monitoring;

(b) The Contractor shall determine locations and numbers of measurement points which meet the purpose of monitoring and need for safety management. The locations of measurement shall be where measurement can be continuously made throughout the period of working;

(c) The instrumentation shall be regularly calibrated and protected against damage by the Contractor;

(d) The HSO and other relevant Contractor's Personnel shall analyse the data and take all necessary corrective action consequent to such monitoring to ensure the continued compliant and safe performance of the Works; and

(e) The Engineer shall be invited to attend the inspections and data collection to ensure the Contractor's compliance in accordance with JSSS 1.10 [*Engineer's Safety Representative*], JSSS 1.11 [*Safety Compliance Instructions from the Engineer*] and JSSS 1.16 [*Joint Site Safety Inspections*].

(12) Management based on Monitoring and Inspection

(a) Management by Visual Inspection:

If and when the Contractor finds any irregularity through visual inspection, the Contractor shall take necessary measures in accordance with the degree of

abnormality, including detailed research, urgent countermeasures, evacuation of workers.

(b) Management by Instrument Measurement:

Unless otherwise specified in the Particular Safety Specification, the Contractor shall determine control limit values based initially upon the allowable displacement or stress in the design, then the following stepwise control values shall be established by the Contractor and necessary measurement and related actions shall be taken.

The Contractor shall provide the following three (3) critical limits in his arrangements for the performance of the Works or in his design of the Temporary Works, and shall take appropriate action when any of these limits is reached:

(i) Primary Limit:

When measured values reach this limit, the Contractor shall increase the degree of care on the incident over inspections and commence preparing countermeasures which will be implemented if and when the measurement value reaches the Secondary Limit and obtain the Engineer's consent for such countermeasures.

The Contractor shall submit the measured values on a weekly basis to the Engineer unless otherwise instructed by the Engineer.

(ii) Secondary Limit:

When measured values reach this limit, the Contractor shall stop the relevant part of the Works and implement the countermeasures.

(iii) Control Limit:

When measured values reach this limit, the Contractor shall immediately stop the relevant part of the Works, advise all affected persons, prohibit entry of any unauthorised persons to the affected area(s), take counter measures to prevent failure, review and revise the Method Statement and Safety Plan, and comply with the Engineer's Instructions before proceeding.

(13) Contractor's Responsibility against damage to Property

Notwithstanding the requirements of this Clause of JSSS, the Contractor is reminded of his overall responsibility under the Contract in respect of damage to property.

The Contractor shall satisfy himself that the monitoring criteria and requirements specified above, or in other respective Chapters of JSSS and/or in the Particular Safety Specification, are sufficient to comply with his obligations under the Contract and he shall take any additional measures necessary to avoid damage to property.

2.2 RISK CONTROL AROUND THE SITE

2.2.1 General

(1) The Contractor is reminded of his obligations under GC 4.8 [*Safety Procedures*] and GC 4.22 [*Security of the Site*] to keep any unauthorised persons off the Site, and without prejudice to such obligations the Contractor shall take all necessary further measures under this Section to prevent any such unauthorised persons (including third parties, neighbours and particularly children) who may for example be living or working around the boundary of the Site or adjacent thereto, from entering the Site.

(2) In addition, the Contractor shall help to maintain communications with the local community near the Site in accordance with JSSS 2.2.6 [*Community Relations*].

(3) In addition to taking necessary action to keep any unauthorised persons off the Site the Contractor shall fully inform the relevant local organisations (e.g. police force) and if necessary request assistance to remove any trespassers from the Site. When requested by the Contractor, the Employer shall provide reasonable assistance to coordinate with the local organisations (including the police force).

(4) Such measures shall include (but are not restricted to) the following requirements of this Section.

(5) The Contractor shall also prevent access to the Site by any persons, including Contractor's and Employer's Personnel and any others who are under the influence of drink or drugs and also to prevent alcohol and drugs being brought onto the Site.

2.2.2 Working Area Perimeter

(1) Unless otherwise specified in the Particular Safety Specification, the Contractor shall:

(a) Enclose the perimeter of all working areas with secure fencing to prevent access to the Site by unauthorised persons;

(b) Maintain all such fencing in good condition, until such fencing is no longer needed and reinstate all affected areas;

(c) Provide secure entry points with lockable gates or barrier;

(d) Provide and maintain signs clearly advising/warning against entry; and

(e) Provide watchmen and lighting where, when and to the extent necessary to apprehend and evict any unauthorised persons (particularly children) from the working area, where such persons have breached the Site Perimeter and working area perimeter fencing.

(2) Unless otherwise specified in the Particular Safety Specification, working area perimeter fencing shall be temporary, constructed of new and durable materials and fit for the purpose intended.

(3) Full details of working area perimeter fencing including scope, dimensions and specifications shall be given in the Method Statement.

(4) The Contractor shall provide fall prevention measures such as temporary covers or barriers, with lighting and warning signs for any excavations outside the working area perimeter.

2.2.3 Measures for Road Occupation

(1) Before the Contractor carries out work on, in or under a public road, or uses it for access to the Site, based on the prior coordination with the relevant authorities by the Employer, in order to ensure safe and smooth traffic flow on the road, the Contractor shall:

(a) Prepare a road usage plan and submit it to the relevant authorities, and obtain necessary permits, prior to road use;

コメントの追加 [SS51]: 11. (38)

コメントの追加 [SS52]: No. 38
Cambridge Dictionary says "prevent something from XXing".
https://dictionary.cambridge.org/dictionary/english/prevent
We are informed, however, that "from" is often omitted in U.K. Well, let's omit it.
（大場）辞書をよく読むと「英国では"from"を省略しがち」とある。

→他の箇所と比較をして統一する
Depending on use of "prevent" "with" or "without" "from" -ing in JSSS, we make it consistent with/without "from".

NK: Both "with" and "without" "from" -ing" are used in JSSS. So we leave as they are.

コメントの追加 [MJD53R52]: No further comment, will not change

コメントの追加 [SS54R52]: Confirmed.

(b) Obtain the approval and necessary permits of the relevant authorities before any road closure, diversion or other traffic restrictions are applied;

(c) Take necessary measures to ensure safe and smooth traffic flow on the road during the entire road usage period; and

(d) Take safety measures specified in JSSS 2.2.2 [*Working Area Perimeter*].

(2) The Contractor shall provide a Spotter (refer to JSSS 2.4 [*Spotters*] full time upon the Works (including all non-working periods) so that the Contractor's Personnel and the general public including road users, pedestrians and all others are effectively informed, controlled and protected against accident.

2.2.4 Temporary Road Signs

(1) For disseminating necessary information on roads adjacent to the Site, the Contractor shall:

(a) Provide standard road signs in the same colours and format as those used by the relevant authorities in the Country such as construction signs, direction, speed restriction, detour and roadwork signs;

(b) Signs shall be set in suitable places so as to give due warning, information and guidance to road-users and pedestrians alike; and

Signs shall be fit for purpose, fixed firmly so as not to break, fall or otherwise be damaged due to vibration, wind or other natural causes.

(2) Maintain the various signs regularly, including repairing, painting and cleaning. Ensure that all are clearly visible, well-lit or made of reflective materials so that they can be seen clearly from a distance at night.

2.2.5 Traffic Accident Prevention at Site Entrance

(1) In order to prevent traffic accidents occurring at or near the Site entrance, the Contractor shall:

(a) Provide warning signs adjacent to the Site entrance to inform drivers on the public road that the Site entrance exists and to inform of the possible emergence of construction traffic/equipment;

(b) Provide temporary traffic signals or Spotters for safe control of traffic (including construction traffic) and Contractor's Equipment, Contractor's Personnel and the general public including road users, pedestrians and all others to protect against accident;

(c) Provide designated areas for anyone entering the Site to board or be discharged from public and private transport;

(d) Provide pedestrian crossings and passages with Spotters or traffic signals; and

(e) Give priority to pedestrians and passing vehicles at the entrance.

2.2.6 Community Relations

(1) In order to maintain communications and improve safety for the local community near the Site, the Contractor shall:

(a) Cooperate with the Employer and assist in dissemination of comprehensive information about the Project to the nearby community; and

(b) If so required by the Particular Safety Specification, Conduct traffic safety and awareness activities for the local community.

(2) The Contractor shall ensure that all Contractor's Personnel are informed of the safety rules and any precautions regarding the safe passage of construction vehicles/equipment especially when children are arriving at or leaving from school.

(3) The Contractor shall report immediately to the Engineer if the local community raises any complaints or issues any requests to the Contractor.

2.3 PROHIBITION OF ENTRY

2.3.1 General

(1) The Contractor shall prohibit unauthorised personnel from entering areas where Dangerous Work is being undertaken.

(2) For general requirements of Dangerous Work refer to JSSS 1.22 [*Dangerous Work*].

(3) "Unauthorised personnel" in this context shall mean Contractor's Personnel, Employer's Personnel and any other persons who have not been properly trained or who are not properly equipped with PPE (including rescue equipment) and who are not carrying and displaying an official permit issued to them by the HSO, for that specific work place in accordance with JSSS 1.23 [*Permit to Work System – Dangerous Work*].

(4) Workers assigned to Dangerous Work shall be subject to the Permit to Work System described in JSSS 1.23 [*Permit to Work System – Dangerous Work*].

2.3.2 Demarcation and Requirements

(1) The Contractor shall clearly demarcate all areas where Dangerous Work is being carried out by the use of appropriate fencing, barriers, signage and lighting and shall control access to such areas with the full-time assignment of a Spotter.

(2) The Spotter shall be established outside the working area, and shall prevent the entry of unauthorised personnel and shall constantly communicate with and monitor the safety of assigned workers. The Spotter shall be equipped with radio or other efficient means of communication to act as a liaison with other relevant Contractor's Personnel.

(3) No-one, no matter their position of authority, should be allowed to enter, if not so authorised to do so and the Contractor shall ensure that Spotters do not face any adverse repercussions because of a refusal to allow access.

2.4 SPOTTERS

2.4.1 Definitions

For the definition of "Spotter", refer to JSSS Annex1.1 [*Definitions and Abbreviations*].

2.4.2 Duties

Duties include for example:

(1) Preventing unauthorised personnel from entering areas where Dangerous Work is being carried out.

(2) Giving appropriate guidance and signals during operation of Contractor's Equipment to prevent the equipment tipping, overturning or falling.

(3) Giving appropriate guidance and signals to prevent Contractor's Personnel from being struck or pinned by Contractor's Equipment.

(4) Assisting drivers of vehicles including trucks and operators of other Contractor's Equipment in positioning their vehicles particularly when manoeuvring.

(5) Directing operators and drivers to prevent Contractor's Personnel, Contractor's Equipment, Goods in transit, transport and the like from coming into contact with Overhead Services as defined in JSSS 3 [*Existing Underground, Concealed and Overhead Services*] when working within close proximity and preventing same from encroaching upon minimum allowable distance from Overhead Services.

(6) Controlling pedestrian and vehicular traffic, Contractor's Personnel and Contractor's Equipment on roads and footpaths on or adjacent to the Site, adjacent to buildings, Operational Areas, places with poor visibility, slopes and vertical drops, places where there is risk of falling or landslide and places where excavation and transporting equipment perform Excavation Works close to workers.

(7) Monitoring working locations and conditions and preventing any persons from entering areas where Dangerous Work is being carried out or where there is any risk of potential injury and accident.

(8) Any other similar duties and assistance.

2.4.3 Placement

(1) The Contractor shall provide Spotters as appropriate to the Site situation and the work methods employed.

(2) The Contractor shall ensure that the Spotters are informed about the Site conditions and accident prevention.

2.4.4 Safety

The Contractor shall:

(1) Ensure the safety of Spotters when directing vehicles or Contractor's Equipment.

(2) Ensure that Spotters and drivers agree on hand signals before assisting with vehicle manoeuvring.

(3) Instruct Spotters to maintain visual contact at all times with the driver during vehicle manoeuvring.

(4) Instruct drivers to stop manoeuvring immediately if they lose sight of the Spotter.

(5) Not give Spotters additional duties while they are already acting as Spotters.

(6) Instruct Spotters not to use personal mobile phones, personal headphones, or other items which could pose a distraction during spotting activities.

(7) Provide Spotters with high-visibility clothing, especially during night operations.

2.4.5 Signals

(1) To avoid the risk of injury to the Contractor's Personnel when operating Contractor's Equipment, the Contractor shall establish a standardised signal system and appoint a Spotter to give necessary signals to the Contractor's Personnel.

(2) The Contractor shall ensure that all Contractor's Personnel understand and comply with the signals relating to their assigned work task.

(3) The Contractor shall inform and remind all Contractor's Personnel including those designated as Spotters, of the established standardised signal system as follows:

(a) By training all personnel when they first start work at the Site;

(b) By re-confirming with the all personnel in the TBM before the start of work each day; and

(c) By posting signboards on Site where required showing the standardised signals and placing a smaller-sized sticker version directly on the concerned Contractor's Equipment.

2.4.6 Qualification of Personnel

The Contractor shall ensure that all Spotters possess sufficient experience and ability and are adequately trained and supervised to perform their duties.

2.4.7 Communication Tools

The Contractor shall, when necessary, provide and maintain any necessary equipment such as hand-held radios, to ensure effective and safe communications and train all Spotters in their use.

2.4.8 PPE

The Contractor shall ensure that all Spotters are provided with PPE including hats, whistles, high visibility jackets, flags, illuminated batons, etc. to safely and adequately perform their duties.

2.5 FALL PREVENTION

2.5.1 General Items

(1) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for fall prevention complying with OSHA 1926 Subpart E [Personal Protective and Life Saving Equipment], Subpart M [Fall Protection] and the further requirements for fall protection for workers contained in the following Subparts of OSHA:

(a) OSHA 1926 Subpart L [Scaffolds];

(b) OSHA 1926 Subpart CC [Cranes and Derricks in Construction];

(c) OSHA 1926 Subpart R [Steel Erection];

(d) OSHA 1926 Subpart S [Underground Construction, Caissons, Cofferdams and Compressed Air];

(e) OSHA 1926 Subpart V [Electric Power Transmission and Distribution]; and

(f) OSHA 1926 Subpart X [Stairways and Ladders]. ~~; and~~

~~(g) OSHA 1926.105 [Safety Nets].~~

(2) This Section provides fall prevention solutions for a typical range of example circumstances but this is not intended to be restrictive in extent. The Contractor shall provide fall prevention solutions wherever demanded by the nature of the particular part of the Works.

(3) As a general rule, the Contractor shall take Personal Fall Restraint System (PFRS) measures wherever practicable rather than Personal Fall Arrest System (PFAS) measures.

2.5.2 Height Thresholds

The threshold for fall protection in construction work is 2 m.

The Contractor shall provide fall protection for all personnel, removing all fall hazards whenever any personnel are working 2 m or more above a lower level.

2.5.3 Facilities for Ascending and Descending

When carrying out work at heights of 2 m or more, the Contractor shall provide facilities that enable the Contractor's Personnel to safely ascend and descend from such work levels.

2.5.4 Risk Assessments

(1) Where there is any risk of fall for any part of the Works at the Site, the Contractor shall conduct a pre-assessment of the various types of fall protection systems to be used and the selected alternatives shall be shown in the Safety Plan.

(2) In advance of the commencement of any parts of the Works, the Contractor shall carry out such further risk assessment as necessary, including checking the following and recording the results:

(a) Working areas and the conditions of adjacent areas;

(b) Position, condition and surroundings at each anchorage for separately securing working line, lifeline or nets;

(c) Status of access leading to working areas and any anchorages; and,

(d) The presence or absence of protrusions where there is a risk of cutting or chafing of working line or lifeline or other fall prevention systems and their position and condition.

コメントの追加 **[SS55]:** There is (e) the erection of tanks and communication and broadcast towers in Subpart E §1926.105 (Safety Nets) in the last issue. It is deleted or missing in this issue. Is there any reason to delete this ? If the reason is only overlook it, please add this 1926.105 (Safety Nets).

コメントの追加 **[MJD56R55]:** Not necessary to refer to OSHA as we have covered all requirements of OSHA with JSSS 2.5.16

Can include here also if you require; please advise

コメントの追加 **[SS57R55]:** I assumed so.
We will not add (g).

コメントの追加 **[SS58]:** 7. (30)

2.5.5 Handrails

(1) The Contractor shall provide handrails at places where there is risk of fall.

(2) Handrails shall be complete with top-rails, minimum 85 cm high and mid-rails at a height of 35 – 50 cm.

(3) Top-rails shall be designed to withstand 90kgf (approx. 880N) ~~883 N~~ of horizontal force and mid-rails 70kgf (approx. 690N) ~~686 N~~ of horizontal force and sufficient uprights shall be provided to sustain these forces.

(4) Handrails shall be fit for purpose, of rigid and sound condition, securely fixed, without excessive corrosion, deformity or damage of any kind.

(5) If handrails are temporarily removed for example to permit work to be carried out, the Contractor shall provide alternative safety measures including for example:

(a) Displaying appropriate warning signs;

(b) Assigning a Spotter to direct non-essential Contractor's Personnel away;

(c) Providing alternative fall prevention systems to Contractor's Personnel in that area including for example PFRS or PFAS or safety nets;

(d) Prohibiting entry to the working area of any unauthorised Contractor's Personnel; and

(e) Handrails shall be restored immediately after the necessity for removal has ended.

2.5.6 Toeboards

(1) Toeboards shall be provided to bottom of all handrails to prevent risk of Falling Objects.

(2) Toeboards shall be minimum 10cm high from top edge to the level of the Working Platform, runway or ramp.

(3) Where material is piled to such height that a 10cm toeboard does not provide protection, panelling from floor to mid-rail, or to top-rail shall be provided.

2.5.7 Preventing Falls from Walkways

(1) Walkways

For the purposes of interpretation:

"walkways" mean route or passage for safe movement of pedestrians including walkways, bridge type walkways, covered walkways, ramps, stairways, ladders and stepladders.

(2) Safe Routes

The Contractor shall provide walkways leading to, within and around the Site and any working areas within the Site.

These shall be designed and constructed to ensure the safe passage of Contractor's Personnel and shall be provided with temporary lighting and effectively maintained at all times.

The Contractor shall display signs clearly indicating the location, intended use and any restrictions and extent with directions so that the Contractor's Personnel can adhere to the routes.

Other construction activities will be prevented from obstructing these routes.

(3) Handrails

At any point where there may be a risk of Contractor's Personnel falling from temporary walkways, the Contractor shall provide handrails as specified in JSSS 2.5.5 [*Handrails*].

コメントの追加 **[SS59]:** 12. (40)

コメントの追加 **[SS60]:** No. 40
Modified as JICA commented that the values shall be understandable.
NK has agreed to specify values to indicate original ones.

コメントの追加 **[MJD61R60]:** No comment will change

コメントの追加 **[SS62R60]:** Confirmed.

コメントの追加 **[SS63]:** JICA added in relation with their comment to 6.4.1.
NK agreed.

コメントの追加 **[MJD64R63]:** No comment will change

コメントの追加 **[SS65R63]:** Confirmed.

Alternatively, the Contractor shall provide fall prevention equipment with the same or better functionality.

2.5.8 Preventing Falls by Providing Temporary Working Platforms

(1) The Contractor shall provide a temporary Working Platform where Contractor's Personnel are carrying out any operation at a height 2 m or more above the base and where there is any risk that Contractor's Personnel may fall.

(2) Temporary Working Platforms shall be constructed from steel tubular Scaffolding, system Scaffolding or other safe and secure types.

(3) Temporary Working Platform shall always have handrails.

(4) If handrails are temporarily removed for construction purposes, the Contractor shall take the measures described in JSSS 2.5.5 [*Handrails*].

2.5.9 Preventing Falls from the Ends and Openings of Working Platforms

(1) The Contractor shall take measures to prevent any falls from ends, edges and around any openings in Working Platform.

(2) The Contractor shall provide handrails to all ends, edges and openings.

(3) Alternatively, the Contractor may place covers over any openings, each of sound construction and designed with a bearing capacity of at least twice any likely superimposed load, including any materials, Plant or Contractor's Personnel.

(4) If for any reason it is not possible to provide handrails around working areas, or to provide covers or when covers are temporarily removed for construction purposes, the Contractor shall take the measures described in JSSS 2.5.5 [*Handrails*].

2.5.10 ~~Measures for~~ Preventing Falls during Excavation Works

コメントの追加 **[MJD66]:** To make it consistent with other headings in this section

The Contractor shall take all necessary measures to prevent falls during Excavation Works including for example:

(1) Providing fall prevention systems including temporary handrails or barriers, PFRS, PFAS or rope access.

(2) Taking appropriate measures to ensure that earth slopes do not collapse due to the fixing of any fall prevention system or to any contact of the ropes with the slope surfaces.

(3) Providing safe measures to allow Contractor's Personnel to escape from or move around any excavated slope. If it is not possible to take such measures due to the nature of the work, the Contractor shall install main ropes and have Contractor's Personnel use PFRS or PFAS. In such case, the main ropes shall be anchored securely to prevent them becoming loose or detached.

(4) Installing handrails where the slope shoulder is used as a walkway or passageway.

(5) Installing safe crossings over trench excavations at a maximum of 30m intervals and prohibiting all Contractor's Personnel from crossing on the shoring system.

(6) Providing safe means of access and egress using stairways, ladders, ramps and the like to all excavations such as trench, basement, footing excavations, which are 1.2 m or more in depth, generally requiring no more than 7.5m of lateral travel for Contractor's Personnel.

(7) Prohibiting all Contractor's Personnel from crossing on struts of Earthwork-Support.

2.5.11 ~~Measures for~~ Preventing Falls during Rope Access Work

コメントの追加 **[MJD67]:** Ditto

(1) The Contractor shall take all necessary measures to prevent falls during rope access work including for example:

(a) Installing a lifeline to which the PFAS is attached in addition to the working line to which the PFRS is attached; and

(b) Ensuring that the working line, lifeline and harness have sufficient strength and that they have not suffered any damage, abrasion, deformation or corrosion and that the Contractor's Personnel are trained in the use and that they use them properly.

(2) In relation with the working line, lifeline and harness, the Contractor shall ensure that:

(a) The working line and lifeline are securely anchored to independent rigid supports vertically above the work location and cannot be detached;

(b) The working line and lifeline are of sufficient length to allow the Contractor's Personnel to move up and down safely;

(c) Measures have been taken to prevent cutting or chafing, such as providing covers, where there is a risk that the working line or lifeline may be cut or chafed due to protrusions;

(d) That the working line is anchored to two or more independent strong supports; and

(e) The positioning device shall be securely connected to the working line with connectors and the connecting devices shall be compatible with the working line used.

(3) The Contractor shall provide the following particular information in the Safety Plan and shall ensure that all Contractor's Personnel engaged in rope work are fully qualified and informed when doing so, including advising them of:

(a) Location of each anchorage used to secure the working line and lifeline;

(b) Types and strengths of the working line and lifeline to be used;

(c) Lengths of the working line and lifeline to be used;

(d) Protrusions where the ropes may be cut or chaffed and measures to prevent this; and

(e) Measures to prevent Contractor's Personnel engaged in securing the working line and lifeline to the anchorages from falling.

(4) The Contractor shall also provide measures to prevent the risk of accident to any personnel from Falling Objects; by using covered walkways and PPE.

(5) The Contractor shall appoint an Operation Leader who shall work with the rope work team at all times throughout their assignment and direct the work based on the Safety Plan and perform the following duties:

(a) Inform all Contractor's Personnel engaged in rope work of the content of the Method Statement and Safety Plan before commencement of the work;

(b) Check all equipment to be used on the day prior to commencement of the work, and repair, maintain or replace any equipment immediately if any defect is identified;

(c) Permit the Contractor's Personnel to commence work only after the measures have been taken to provide all working lines, lifelines, PFRS, PFAS and PPE; and

(d) Ensure Contractor's Personnel use PFRS and PFAS correctly and have them fix the PFAS to the life lines.

2.5.12 Further Measures for Contractor's Personnel

The Contractor shall take all necessary further measures to prevent falls during the Works including, for example, taking the following measures before any work commences:

(1) Conduct safety induction and education courses regarding fall risks for all Contractor's Personnel who shall work on locations and operations where there is a risk of falling.

(2) Prohibit the unauthorised removal of any fall prevention equipment and educate Contractor's Personnel on the dangers of this action.

(3) Educate Contractor's Personnel on the proper storage and management of all safety equipment, including for example PFRS, PFAS and PPE.

(4) Stop the work if there is a risk of bad weather such as strong wind, heavy rain, or snow.

2.5.13 PPE ~~for Fall Prevention~~

コメントの追加 **[MJD68]:** To make it consistent with other headings

The Contractor shall comply with the following requirements when Contractor's Personnel are subject to fall risks:

(1) The Contractor shall provide PFRS as follows:

(a) PFRS shall be the same as PFAS specified below but designed to restrict the movement of workers and prevent them from reaching the edge of or any openings in the working area and therefore eliminating the risk of a fall; and

(b) PFRS shall comprise of either a Safety Belt or Safety Harness, together with an anchorage, connectors and other necessary equipment, typically including a lanyard, lifeline and other devices.

(2) The Contractor shall provide PFAS as follows:

(a) The PFAS shall be the full harness type and shall comprise of a body harness, connectors, lanyard, deceleration device, lifeline, anchorage, or suitable combination of these;

(b) The use of a Safety Belt for PFAS is prohibited except where there is any risk of the Contractor's Personnel hitting the lower surface when the full harness type is used and the total fall clearance distance calculated as below, is less than the distance between the point at which a worker would be anchored and any lower level;

The total fall clearance distance for PFAS with a shock-absorbing lanyard is calculated as the total of free fall distance, deceleration distance, D-ring shift, back D-ring height, and safety factor. (Refer to OSHA Technical Manual General Information, Section V: Chapter 4 Fall Protection in Construction, III. Measurements for Assessing Fall Hazards and Controls, A. Total Fall Clearance Distance for PFAS.).

(c) PFAS shall withstand the total force exerted on the system by the Contractor's Personnel falling, including the weight of the system itself; and

(d) For shock absorbers, an appropriate specification and type shall be selected according to the free fall distance calculated from the Contractor's Personnel's working position (height of anchor point, length of lanyard, etc.).

(3) The PFRS and PFAS shall bear the name of the manufacturer and the date of manufacture and shall be easily visible.

(4) Inspection of any safety equipment.

Before starting work using PFRS or PFAS, the systems and anchorages to which the systems are to be attached shall be inspected and defective, damaged, worn-out or missing parts or components shall be replaced.

2.5.14 Ladders and Stepladders

For further requirements, refer to JSSS 6.4 [*Walkways*].

2.5.15 Work on Roofs and Other Areas

(1) Where Contractor's Personnel are carrying out work on roof at a height of 2 m or more, PFRS or PFAS shall be used with secure and safe anchorages.

(2) The Contractor shall, ensure that PFRS or PFAS are inspected before each use and declared safe for use with no defective, damaged, worn-out or missing parts or components.

(3) Prevention of Fall Risks on Floors, Fragile Roofs and Other Surfaces

When working on, accessing or crossing, floor or roof areas (including uncompleted areas under construction), or fragile roofs such as those covered with slates, tiles or other non-loadbearing coverings or where there is any risk of breaking and/or falling through such areas, the Contractor shall provide continuous bearing boards for workers to walk on, with a minimum width of 60 cm or sufficiently wider to provide safe transit and where necessary to spread the bearing load on the surface and avoid penetration. The boards shall be fixed together and secured to the underlying surface by tying with ropes or clips to prevent any movement.

Unless otherwise approved by the HSO, handrails shall be provided to one or both sides.

If the underlying surface or roofing is too fragile for such measures and access is required, the Contractor shall provide an independent Scaffolding boarded walkway with handrails both sides, which does not bear upon the existing roof but that is supported independently by a Scaffolding structure.

(4) Demolition or Alteration of Buildings and Structures

When carrying out demolition or alteration of buildings or structures and where there is a risk of Contractor's Personnel falling, the Contractor shall take the following measures:

(a) Appoint an Operation Leader to be engaged on the work;

(b) Safely supervise the work; and

(c) Inform and train Contractor's Personnel engaged in the said work so that they are aware in advance of the work methods and procedures.

2.5.16 Safety Nets

(1) The Contractor shall provide safety nets when workplaces are more than 7.50m above the lower ground level or water surface level and where the use of another type of fall prevention system is impractical or has been removed.

(2) Operations shall not be undertaken until the net is in place and has been inspected and tested.

(3) Nets shall extend 2.5m beyond the edge of the work surface where Contractor's Personnel may be at risk and shall be installed as close under the working surface as practical but in no case more than 7.50m below such work surface.

(4) Nets shall be hung with sufficient clearance to prevent user's contact with the surfaces or structures below. Such clearances shall be determined by impact load testing.

(5) The mesh size of nets shall not exceed 15 cm by 15 cm. All new nets shall bear a label of proof test from the manufacturer that they can withstand ~~23,700 Nm~~ 17,500 lbf・ft (approx. 23.7 Nm) minimum impact resistance. Edge ropes shall provide a minimum breaking strength of ~~22,261N~~ 5,000 lbf (approx. 22.3 kN).

(6) Forged steel safety hooks or shackles shall be used to fasten the net to its supports.

コメントの追加 **[SS69]:** As same as comment No.40, original unit and SI Unit are specified.

コメントの追加 **[MJD70R69]:** No comment will change

コメントの追加 **[SS71R69]:** Confirmed.

2.6 FALLING OBJECTS

2.6.1 General

The Contractor shall take all necessary measures to avoid danger and prevent damage and injury to Contractor's Personnel, Employer's Personnel and any other persons including third parties that are on or adjacent to or in the vicinity of the Site whether connected with the Works or otherwise, and who may be at risk from Falling Objects.

In general, this shall be accomplished by:

(1) Providing secure temporary barriers to prevent or capture Falling Objects, designed by the Contractor to be of sufficient strength to capture all Falling Objects without perforating and where necessary shall be of an aesthetic design to be approved by the Engineer.

(2) Providing a safe means of raising and lowering Goods, tools, waste and debris.

(3) Providing an exclusion zone with temporary barriers and all other necessary measures to prevent persons and traffic from entering areas where Falling Objects could be a risk, including providing pedestrian and traffic diversions.

Exclusion zone shall also be provided where protective mesh sheets or toeboard are not installed or where they are temporarily removed due to the nature of the work.

(4) Using PPE.

(5) Providing coloured warning tape, barriers and signage warning of "DANGER FALLING OBJECTS" in addition to all other preventive measures.

2.6.2 General Preventive Measures

(1) All horizontal boarded areas of Scaffolding shall be provided with substantial and continuous toeboards to all edges in accordance with JSSS 2.5.6 [*Toeboards*].

(2) Mesh sheet (debris net) shall be provided under and around all edges to cover all openings of Scaffolding horizontal boarded areas.

(3) Continuous and secure debris nets shall be provided to vertical sides of all Scaffolding or openings of external walls where there is no Scaffolding.

(4) Safe walkways with secure roof and walls shall be provided over entrances and exits.

(5) Protective canopies, safety fans or projecting shelves shall be provided to the edge of all roofs and to all vertical faces wherever there is a risk particularly over entrance and exits, working areas, walkways and roads, including those on areas beyond the Site boundary.

(6) Protective roofs shall be provided wherever there is a risk over working areas, walkways, footpaths and roads.

(7) All protective structures including roofs, canopies, safety fans, projecting shelves over walkways shall be fit for the purpose intended and provide a secure protective barrier capable of supporting Falling Objects and of sufficient size and dimensions to give full coverage and protection.

(8) Personnel must be prevented from entering any areas below Scaffolding where there is a risk of Falling Objects through the provision of barriers and signage.

(9) If any protection is temporarily removed then a Spotter shall be assigned to prevent personnel entering the hazard area.

(10) A Spotter shall also be assigned to direct traffic and pedestrians where diversions are necessary.

(11) Use and control of mesh sheets to prevent objects from falling shall be as follows:

(a) Sheet shall have a mesh size of 12 mm or less or a mesh size corresponding to the size of expected Falling Objects;

(b) Sheet shall comply with BS 7955, composed of polyester material, reinforced as necessary to withstand the impact load of Falling Objects;

(c) Sheets that are damaged or which contain any irregularity shall not be used;

(d) If sheet is removed temporarily to suit the work operation, measures must be applied to avoid any risk of accident whilst it is removed and it must be restored immediately after the work operation is completed;

(e) Mesh sheets shall be inspected at least once a week and replaced immediately if any damage is found; and

(f) If there are any Falling Objects on the mesh sheet, these shall be removed before any work starts. The occurrence shall be reported to and investigated by the HSO to prevent any reoccurrence.

(12) When the work place is close to public or private areas, roads, footpaths, buildings or houses and the like along or outside the Site boundary and where there is any risk that Falling Objects could endanger the safety of traffic and third parties in such areas, and in addition to the above preventive measures, the Contractor shall take all responsibility, make all necessary arrangements with such third parties and/or all relevant authorities, insure, serve all notices, pay all charges and provide all necessary protective services and facilities including:

(a) Provision of mesh screens, safety fans, projecting shelves, temporary roofs over walkways or the like to protect such public or private areas, roads, footpaths, buildings or houses and all property, traffic, pedestrians and other persons thereon; and

(b) Safe and efficient diversion of all traffic and persons (in addition to the above or if the above measures cannot be taken) by providing all temporary barriers, signals, lighting and signs and placing a Spotter to direct traffic and pedestrians.

2.6.3 Falling Tools and Equipment

(1) The Contractor shall take appropriate measures to avoid the risk of injury or damage arising from dropped or falling tools including for example the following:

(a) Securing tools and materials;

(b) Use tool holsters, pouches, lanyards, etc.;

(c) Use debris nets, catch platforms or canopies to catch or deflect falling tools; and

(d) Use tethered tools, either with built-in connection points placed by the manufacturer or retrofitted connection points and connect tools to a lanyard. Tools can either be connected to a worker through a tool belt, harness or wristband, or anchored to a fixed structure.

2.6.4 Safety ~~Preventive~~ Measures against Dust and Debris

コメントの追加 **[MJD72]:** To make consistent with other headings

(1) For work where there is a risk of ejected or windblown dust and debris, (for example from stone crushing, concrete batching, cutting and grinding operations and the like), the Contractor shall:

(a) Enclose areas where such operations are taking place and provide protective screens or covers on storage areas;

(b) Maintain equipment and tools in good condition, use of covers and safety guards and procedures for preventing danger due to tool breakage etc.; and

(c) Ensure that workers use appropriate PPE such as head, face and eye protection to

prevent accident or injury.

(2) In strong winds and storms, the Contractor shall take measures to prevent wind-borne materials, etc. according to JSSS 2.7.3 [*Safety Measures for Strong Wind and Storms*].

2.6.5 Safety ~~Preventive~~ Measures against Dropping Objects

(1) The Contractor shall prohibit Contractor's Personnel from throwing or dropping objects (e.g. Scaffolding clips), generally and in no event from heights of 3m or above.

(2) The Contractor shall use a crane to bring objects down from heights of 3m or above. Alternatively, the Contractor may provide enclosed chutes to bring down objects and in addition, shall prohibit entry to the chute area or assign a Spotter.

(3) Chutes shall be designed to prevent objects being scattered over the surrounding area.

2.6.6 Preventing ~~Prevention of~~ Accumulation of Goods at Height

(1) The Contractor shall prohibit the accumulation and storage of Goods at high levels particularly on Scaffolding and in locations where such Goods are at any risk of falling due to the effect of wind, vibration, water or gradient.

(2) Goods shall generally not be stored or allowed to accumulate within 1m of platform or work floor edges and openings or the like.

(3) When temporarily stored at height, Goods shall be restrained by ropes or sheets to prevent them from falling or slipping.

(4) Goods that are likely to scatter or spread, shall be suitably constrained by tying, boxing or bagging.

2.6.7 Working Above or Below Other Persons

(1) As a general and prevailing rule, the Contractor shall prohibit his workers from working concurrently above or below other persons. To achieve this the Contractor shall carefully coordinate the work location, content, timing of the work operations between his assigned workers.

(2) In exceptional circumstances where this is unavoidable due to the nature of the work, the Contractor shall increase the supervision and the safety procedures described in this Section to ensure that the risk from Falling Objects is avoided. Workers shall be given further training, provided with PPE and additional working equipment (e.g. slings for tools, safety nets and/or hanging bags) in order to provide additional protection and a Spotter shall be assigned while such overhead operations are being carried out.

2.6.8 Loose Rock, Boulders and the like

(1) If loose rock, boulders, trees and the like, are positioned above working areas and where there is any risk that these may pose a danger to Contractor's Personnel or Contractor's Equipment working below, unless otherwise instructed by the Engineer, the Contractor shall carefully remove such items and if necessary:

(a) Propose further safety measures to the Engineer;

(b) Consult with the Engineer and if appropriate, obtain the Engineer's Instructions for the required further measures to be taken, such as installation of temporary protective barriers; and

(c) Prohibiting Contractor's Personnel from entering the working areas until the above items have been removed or the further measures have been taken.

コメントの追加 **[MJD73]:** To make consistent with other headings

コメントの追加 **[MJD74]:** Ditto

2.7 ADVERSE WEATHER REQUIREMENTS

2.7.1 Preventive Measures

(1) Whenever adverse climatic conditions render it dangerous to continue, the Contractor shall stop affected work at the Site, take preventive measures to ensure the safety of all Contractor's Personnel engaged on that work and inform the Engineer accordingly.

(2) Before, during or after adverse climatic conditions, the Contractor shall:

(a) Stop work at heights if there is any danger of falling;

(b) Stop work if there is a possibility that such work may be dangerous due to possibility of electrical shock, slippery conditions or poor visibility and the like during rain, snow or fog, and inform the Engineer accordingly;

(c) Inspect the Works and all Goods intended to be incorporated in the Works or used thereon (including any temporary structures) for damage and risk of causing any danger before resuming work. If any damage or risk is found, the Contractor shall immediately take necessary action to prohibit entry in accordance with JSSS 2.3 [*Prohibition of Entry*], inform the Engineer accordingly and if appropriate, request his instructions; and

(d) Inspect Goods for damage and risk of any danger before resuming work. If any damage and risk is found, use Contractor's Equipment and Temporary Works only after making the necessary repairs or replacement.

2.7.2 Safety Measures for Heavy Rain

When heavy rainfall takes place or is anticipated at the Site and the surrounding area, the Contractor shall:

(1) Take measures to prohibit entry in accordance with JSSS 2.3 [*Prohibition of Entry*] at the following locations:

(a) Places where landslides could be anticipated;

(b) Places where there is a risk of flow of material and equipment and soil runoff; and

(c) Places where there is a risk of damage due to flash floods, lake or river flooding.

(2) Take measures to prevent the Goods from being submerged, washed away or overturning, for example preparing, wherever possible, stock yard at a safe place, evacuating materials and equipment to a safe place, etc.

2.7.3 Safety Measures for Strong Wind and Storms

For strong wind and storms at the Site and the surrounding area, the Contractor shall:

(1) Take measures to prevent capsize, overturn or movement of Contractor's Equipment particularly tall equipment such as cranes, pile drivers, pile drilling rigs and the like.

Where possible, lower the boom of tall equipment and tie to a secure anchor with steel cable to ensure stability and prevent any risk of overturning.

(2) Always store and/or if necessary evacuate Goods to a sufficient distance away from overhead power and communication lines to prevent damage and injury.

(3) Take the following measures, as necessary, for Scaffolding and Working Platforms.

(a) Remove or furl mesh sheets to reduce wind load;

(b) Prevent Scaffolding from collapsing or sliding by dismantling Scaffolding or adding or reinforcing wall connectors;

(c) Dismantle or reinforce Scaffolding projecting from buildings by supporting ropes, cables or additional struts and bracing; and

コメントの追加 **[MJD75]:** To make consistent with other headings

コメントの追加 **[MJD76]:** To make consistent with other headings

(d) Securing Goods on Scaffolding, or lowering them to ground level.

(4) Discontinue work at elevated places.

(5) Take measures to prevent scattering of Goods, waste and debris.

2.7.4 Safety Measures for Heavy Snow and Ice

For heavy snow or ice at the Site and the surrounding area, the Contractor shall:

(1) Take fall prevention measures in snow such as setting of poles or red flags to demarcate roads, footpaths and waterways.

(2) Take fall prevention measures for workers in icy conditions or snow, by ice or snow removal on roads, platforms, stairs, ramps, slopes, passages, Scaffolding, canopies, safety fans, projecting shelves and the like.

(3) Remove snow from roofs, canopies and signs, notice boards.

(4) Prohibit works on Scaffolding, Working Platforms or staging if snow or ice is present except after its careful removal.

2.7.5 Safety Measures for Lightning

(1) Where there is any risk that lightning may affect work on or near tall objects, or near explosive or conductive metals, the Contractor should recognise lightning as an occupational hazard and take precautions to prevent exposure of all Contractor's Personnel thereto.

(2) Before commencing any outdoor work, the HSO shall ensure that local weather forecasts have been checked and wherever necessary and possible, that work has been rescheduled to avoid ~~workers~~ Contractor's Personnel being caught ~~outside~~ in hazardous weather conditions.

(3) When working outdoors, Operation Leaders and workers shall continuously monitor weather conditions so that wherever possible they remain aware of the likelihood of thunderstorms.

(4) The HSO shall identify and inform workers of buildings to be used for shelter when ~~heard~~ thunder is heard or lightning is observed. Such shelters shall be fully enclosed, substantial and preferably shall have earthed electrical wiring and plumbing. ~~Workers~~ Contractor's Personnel shall remain in shelters for at least 30 minutes after hearing the last noise of thunder.

(5) If suitable buildings are not immediately available, ~~workers~~ Contractor's Personnel shall be instructed to shelter in enclosed rubber-tyre vehicles with windows closed and to remain there for at least 30 minutes after hearing the last noise of thunder. Tracked excavators, cranes or similar types of Contractor's Equipment shall not be used.

(6) The Safety Plan shall include lightning safety procedures which shall:

(a) Inform of all required actions when thunder is heard, lightning is seen ~~personnel hear thunder or see lightning~~, or perceive other signs of approaching thunderstorms is observed;

(b) Indicate how information is to be disseminated amongst personnel on the Site;

(c) Identify locations and requirements for safe shelters;

(d) Indicate response times necessary for all personnel to reach safe shelters; and

(e) Specify methods to determine when to stop and resume affected work activities.

(7) The Contractor shall display signs with information on lightning safety.

(8) The Contractor shall provide adequate training to all personnel on lightning safety with

コメントの追加 **[MJD77]:** To make consistent with other headings

コメントの追加 **[MJD78]:** To make consistent with other headings

コメントの追加 **[SS79]:** 13. (42)

コメントの追加 **[SS80]:** No.42
JICA replaced, added and deleted as shown in red letters with blue shading.
NK agreed.

コメントの追加 **[MJD81R80]:** No comment will change

コメントの追加 **[SS82R80]:** Confirmed.

the safety induction training required by JSSS 1.20 [*Safety Induction Training*].

(9) Unless otherwise determined to be safe by the HSO, the Contractor shall prohibit any hazardous exposed work and external work at heights during thunder storms including for example:

(a) Work on or from Scaffolding;

(b) Work ~~on~~ ~~or~~ ~~by~~ with, on or in the vicinity of cranes or hoists or similar Contractor's Equipment;

(c) Work on tops of walls, exposed, elevated slabs or roofs;

(d) ~~work on the~~ Erection or removal of steel structures; ~~and~~

(e) ~~Work on the~~ Erection of steel reinforcement and other metal components.

(f) Outdoor work of power utility; and

(g) Work of plumbing and pipe fitting.

2.7.6 Safety Measures for Earthquake and Tsunami

To the extent that time is available and forewarning is given, the Contractor shall evacuate workers to the designated meeting place in the event of earthquakes or tsunamis when the relevant authority issues a warning for the occurrence or prediction of earthquakes or tsunamis.

2.7.7 Inspection ~~of Temporary Works after Adverse Weather and Earthquake~~

Following the occurrence of any adverse weather or after any earthquake and before re-commencing any work, the Contractor shall:

(1) Perform a visual inspection.

(2) Check all measured values of any instruments to ensure the safety of Temporary Works.

(3) When abnormality is found in instruments, recalibrate or replace them.

(4) If any damage or fault is found in the TW, immediately carry out repair, replacement and/or reinforcement works, as necessary.

(5) Keep the Engineer informed of inspection and monitoring results.

コメントの追加 **[SS83]:** 13. (42)

コメントの追加 **[SS84]:** JICA comment that they cannot know what kind of work on cranes is expected. (Operators work in cranes.), so "on" may not necessary.
Can you show example what you assume work on cranes.

コメントの追加 **[MJD85R84]:** "On" means for example maintenance or adjustment work on cranes, the jib of which may attract lightning, or similarly to other large Contractor's Equipment.

It can also say, "with, on or in the vicinity of"

"by" means in the "vicinity of".

Please advise of your choice

コメントの追加 **[SS86R84]:** JICA also assumed as you explained assembling, repair, etc. work on jib.
I want to replace with "with, on or in the vicinity of".

コメントの追加 **[SS87]:** JICA added as the guideline stipulates.
NK will add them to finish our work.

コメントの追加 **[MJD88R87]:** Power Utility - No comment

"Plumping" should be "Plumbing"

We will correct

コメントの追加 **[SS89R87]:** Confirmed.

コメントの追加 **[MJD90]:** To make consistent with other headings

コメントの追加 **[MJD91]:** To simplify headings

2.8 FIRE PREVENTION

2.8.1 ~~Fire Prevention and Firefighting~~ Measures and Facilities

コメントの追加 **[MJD92]:** To simplify headings

Unless otherwise specified in the Particular Safety Specification, the Contractor shall take measures and provide facilities for fire prevention and fire-fighting and shall ensure that such measures are readily available and at all times at the Site and at any offices and accommodation for Contractor's and Employer's Personnel.

(1) Fire Response Plan:

The Contractor shall:

(a) Prepare a Fire Response Plan detailing the proposed fire prevention and fire-fighting measures and facilities and include this as a part of the Safety Plan;

(b) Designate a person (or persons) responsible for fire prevention, fire-fighting and also for evacuation in the event of a fire;

(c) Prepare a firefighting training plan as a part of the fire prevention and fire-fighting plan; and

(d) Carry out all training and keep records of such training in accordance with JSSS 1.19.6 [*Records of Education and Training*].

(2) Fire Response Measures and Facilities:

The Contractor shall:

(a) Provide fire hoses, hose-reels, fire hydrants and similar equipment, and temporary water supply where considered necessary by the HSO;

(b) Provide fire extinguishers and fire blankets according to the area and purpose of use, such as for ordinary fires, oil fires, electric fires and the like;

Fire extinguishers shall be regularly inspected, refilled, serviced and certified as such by a qualified and independent safety company approved by the Engineer;

(c) Prohibit smoking anywhere on the Site other than designated smoking areas, and implement effective fire prevention measures by placing buckets filled with water or sand in smoking and other dangerous areas; and

(d) Train Contractors Personnel and ensure that a team or teams is available to respond in the event of a fire and in advance or in place of attendance by any public firefighting service.

2.8.2 ~~Measures for~~ Evacuation

コメントの追加 **[MJD93]:** To simplify headings

In the event of a fire, the Contractor shall facilitate evacuation by:

(1) Creating an evacuation route map if necessary and post this in easy-to-see places.

(2) Display the evacuation routes as necessary at all work places.

(3) Install multiple evacuation routes and staircases for buildings with 2 or more floors and a capacity of 30 people or more.

(4) Establish a communication method to inform the Contractor's Personnel, Employer's Personnel and any other persons that are on the Site so that they are aware of danger and that they must evacuate due to a fire.

2.8.3 Management of Flammable and Combustible Materials

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS and unless otherwise approved by the Engineer, the Contractor shall take necessary measures for fire prevention complying with OSHA 1926.152 [Flammable liquids] and OSHA 1926.153

[Liquefied petroleum gas (LPG)] or other relevant OSHA standards for the use and storage of flammable and combustible materials and gases, including gasoline, kerosene, light oil, heavy oil, creosote oil, gear oil, cylinder oil, and other lubricating oils and organic solvents such as acetone, toluene, LPG and other gases including oxygen, acetylene etc. (hereinafter collectively referred to as "flammable and combustible materials" in this Section).

In addition, the Contractor shall:

(1) Appoint a person who is appropriately qualified, skilled and experienced in handling flammable and combustible materials, to be responsible for the storage and handling flammable and combustible materials and notify the name of such person to the Engineer.

(2) Store flammable and combustible materials in a purpose-built building or compound, fit for the intended purpose, well ventilated and secure, and protecting the stored materials from direct sunlight and extreme heat.

(3) Take measures to prohibit entry to unauthorised personnel and display signage prohibiting the use of flame.

(4) Determine handling methods of flammable and combustible materials, which shall be notified to the Engineer, and ensure Contractor's Personnel are fully aware of the methods.

(5) Provide fire prevention and firefighting facilities appropriate to the stored flammable and combustible materials.

2.8.4 ~~Fire Prevention~~ Measures for Electric and Gas Welding and Cutting

コメントの追加 **[MJD94]:** To simplify headings

The Contractor shall refer to and comply with JSSS 6.8 [*Electric and Gas Welding and Cutting*] for the fire prevention requirements for electric and gas welding and cutting works.

2.9 PPE AND FIRST AID

2.9.1 PPE

(1) General

(a) Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the Contractor shall provide all necessary and required PPE free of charge, to all Contractor's Personnel, ensure that this is used properly, kept in good condition and replaced in the case of being worn-out, lost or damaged;

(b) PPE shall comply with the requirements of this Section;

(c) The Contractor shall ensure as a minimum and mandatory requirement, that all Contractor's Personnel are provided with the following PPE and the Contractor shall make sure that all Contractor's Personnel wear or use such PPE as appropriate whenever they are on the Site:

(i) Head Protection; and

(ii) Protective Footwear.

(d) The following additional PPE shall be provided whenever required by the working environment:

(i) Eye and Face Protection;

(ii) Ear Protection;

(iii) Respiratory Protection;

(iv) PPE for PFRS and PFAS (Safety Harnesses, Safety Belts and the like);

(v) Gloves; and

(vi) Body Protection.

(e) The particular requirements for PPE are not repeated in each Section of JSSS but appropriate PPE must always be provided by the Contractor; and

(f) PPE described in JSSS 2.9.1 (4) to (11) are examples only and not exhaustive, and the Contractor shall provide further PPE at his cost to the Contractor's Personnel when and where any work requires specific PPE.

(2) Additional Inspection, Testing and Maintenance

Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] and unless otherwise required by the manufacturer or approved by the Engineer:

(a) Frequently used PPE shall be inspected, tested and maintained at least once a month; and

(b) Occasionally used PPE shall be inspected before every use and tested and maintained at least once every three (3) months.

The HSO shall also conduct regular checks to ascertain any requirements for the following:

(a) Inventory and reorder supplies;

(b) Expedite any outstanding manufacturer's response on repair or maintenance issues; and

(c) Schedule of training and retraining.

(3) PPE Signage Requirements

(a) The Contractor shall display signage at specific places at the Site where the wearing of PPE is mandatory;

(b) Such signage shall include for example:

"Head Protection Must be Worn"

"Eye* Protection Must be Worn"

(* face, ear or other)

(4) Head Protection

Head protection shall protect workers' heads and necks against injury from falling or flying objects, risk of head bumping, hair getting tangled in machinery, chemical drips or splash, climate or temperature, reduce the impact from tripping or falling and protect against electric shocks.

Head protection shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.1: Applicable Standards for Head Protection

	Standard	Title of Standard
1	JIS T8131	Industrial Safety Helmets
2	ANSI Z89.1	Industrial Head Protection
3	BS EN 397	Industrial Safety Helmets

(5) Protective Footwear

Protective footwear shall protect against foot injury due to crushing by superimposed loads, impact injuries from dropped or Falling Objects, foot injuries from treading on sharp penetrating objects, injuries from electric shock and also shall increase adhesion preventing workers' from slipping and falling.

Protective Footwear shall have a variety of sole patterns and materials to help prevent slips in different conditions, including oil or chemical-resistant soles. It can also be anti-static, electrically insulating or thermally insulating, appropriate footwear shall be selected for the risks identified.

Protective footwear shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.2: Applicable Standards for Protective Footwear

	Standard	Title of Standard
1	JIS T8101	Protective footwear
2	ASTM F2413	Standard Specification for Performance Requirements for Protective (Safety) Toe Cap Footwear
3	BS EN ISO 20346	Personal protective equipment – Protective footwear
	BS EN ISO 20349	Personal protective equipment. Footwear protecting

		against risks in foundries and welding

(6) Eye and Face Protection

Eye and face protection shall protect workers' eyes and face from harmful materials (for example dust, chemicals, liquid splash, flying objects, molten metal, gas and steam, extreme light, flashes and hazardous rays, dirt and debris, etc.).

Eye and face protection can include safety spectacles, goggles, face masks, face shields, visors and the like. Selected protection shall have the right combination of /impact/dust/splash/molten metal eye and face protection for the task and shall be selected for the risks identified.

Eye and face protection shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.3: Applicable Standards for Eye and Face Protection

	Standard	Title of Standard
1	JIS T 8141 JIS T 8142	Personal eye protectors for optical radiations Personal face protectors for welding
2	ANSI Z87.1	American National Standard for Occupational and Educational Personal Eye and Face Protection Devices
3	BS EN 166 BS EN ISO 4007	Personal eye protection. Specifications Personal protective equipment. Eye and face protection. Vocabulary

(7) Ear Protection

Ear protection shall protect workers' hearing against injury from continuous, loud or Intense Noise by providing soundproofing.

The Contractor shall ensure that workers are still able to receive and immediately react to oral instructions and danger warnings when wearing ear protection.

Ear protection shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.4: Applicable Standards for Ear Protection

	Standard	Title of Standard
1	JIS T 8161	Ear protectors
2	ANSI/ASA S12.6	Methods for Measuring the Real-Ear Attenuation of Hearing Protectors
3	BS EN ISO 4869-1 BS EN ISO 4869-2	Acoustics. Hearing protectors. Subjective method for the measurement of sound attenuation Acoustics. Hearing protectors. Estimation of effective A-weighted sound pressure levels when hearing protectors are worn

	BS EN ISO 4869-3	Acoustics. Hearing protectors. Measurement of insertion loss of ear-muff type protectors using an acoustic test fixture
	BS EN ISO 4869-4	Acoustics. Hearing protectors. Measurement of effective sound pressure levels for level-dependent sound-restoration ear muffs

(8) Respiratory Protection Equipment (RPE)

RPE shall protect workers' airways, lungs and related bodily systems against damage and injury from Harmful Substances or from oxygen-deficient atmospheres when other controls are either not possible or insufficient on their own.

RPE shall be selected with due consideration of:

(a) the Hazardous Substance(s) and the concentration in the air (exposure);

(b) the form of the substance in the air (e.g. gas, particle, vapour);

(c) the type of work being carried out; and

(d) the specific wearer requirements, such as other PPE or a need for spectacles.

RPE shall be:

(a) Correct for the Hazardous Substance such that it reduces exposure to the level required to protect the wearer's health; and

(b) Correct for the wearer, task and environment, such that the wearer can work freely and without additional risks due to the RPE.

As for details, refer to HSE publication HSG53 (Fourth edition, published 2013).

RPE shall fit properly and filters shall be of the correct type as each filter is effective for only a limited range of substances. Filters have only a limited life and shall be changed regularly to maintain performance.

When replacing parts such as filters, use only manufacturers original parts, ensure that the correct type is selected and fit in accordance with the manufacturer's instructions.

Where there is a shortage of oxygen or any danger of losing consciousness due to exposure to high levels of harmful fumes, the Contractor shall only use breathing apparatus, never a filtering cartridge.

RPE shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.5: Applicable Standards for RPE

	Standard	Title of Standard
1	JIS T 8151 JIS T 8157	Particulate respirator Powered air purifying respirator
2	BS EN 149: 2001+A1: 2009 BS EN 14593-1: 2018	Respiratory protective devices. Filtering half masks to protect against particles. Respiratory protective devices. Compressed air line breathing devices with demand valve. Devices with a full-face mask.

コメントの追加 **[SS95]:** No. 44
JICA requested to add the following sentence because HSG53 contains many other stipulations.

As for details, refer to HSE publication HSG53 (Fourth edition, published 2013)

コメントの追加 **[MJD96R95]:** No comment will change

コメントの追加 **[SS97R95]:** Confirmed.

コメントの追加 **[SS98]:** 14. (44)

コメントの追加 **[SS99]:** These are placed on left arrangement from center.

コメントの追加 **[MJD100R99]:** No comment will change

コメントの追加 **[SS101R99]:** Confirmed.

3	ANSI Z88.2-2015	Practices for Respiratory Protection

(9) Safety Harnesses and Safety Belts

PPE for PFRS shall prevent the risk of workers falling from a height or sliding down slopes.

PPE for PFAS shall arrest a worker in a fall from a height or sliding down slopes.

For further requirements on PPE for PFRS and PFAS, refer to JSSS 2.5.13 [*PPE ~~for Fall Prevention~~*].

コメントの追加 **[MJD102]:** Heading changed

PPE for PFRS and PFAS shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.6: Applicable Standards for PPE for PFRS and PFAS

	Standard	Title of Standard
1	JIS T8165	Personal fall-arrest systems
2	ANSI Z359.0 to Z359.16	ANSI/ASSE Z359 Fall Protection and Arrest Standards Package
3	BS EN 361	Personal protective equipment against falls from a height. Full body harnesses

(10) Gloves

Gloves shall protect workers' hands from electric shocks, sparks during welding and fusing work, molten metal, heated metal, etc., and shall reduce the vibrations transmitted to workers' hands by tools, machines, etc.

Gloves shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.7: Applicable Standards for Gloves

	Standard	Title of Standard
1	JIS T 8113 JIS T 8114	Protective Leather Gloves for Welders Vibration isolation gloves
2	ASTM D120 ANSI S2.73	Standard Specification for Rubber Insulating Gloves Mechanical vibration and shock – Hand-arm vibration
3	BS EN 60903 BS EN 12477	Live working. Gloves of insulating material Protective gloves for welders

(11) Body Protection

If the HSO considers necessary, Contractor's Personnel shall be supplied with and shall wear suitable body protection appropriate for the working environment.

Risks such as from chemical or metal splash, spray from pressure leaks or spray guns, contaminated dust, impact or penetration, entanglement of own clothing, hot and extremely cold work; and the like shall be considered and avoided through the provision

where necessary of special protective clothing. This may include for example flame-retardant, anti-static, chain mail, chemically impermeable, and high-visibility clothing and the like.

Body Protection shall be selected and provided for the risks to be identified.

Body Protection shall be kept reasonably clean and shall be replaced when worn out or damaged.

2.9.2 First Aid

(1) General

The Contractor shall ensure that trained personal and adequate first aid equipment and supplies shall be readily available at the Site. First aid kits shall be stored at selected locations on the Site where they are most likely to be needed; they must be accessible with the minimum of delay.

(2) Training

A representative number of Contractor's Personnel selected by the HSO shall be trained in first aid (including CPR) to a minimum standard of that recommended by the International Federation of Red Cross and Red Crescent Societies standard course or equivalent.

(3) First Aid Kits

(a) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for first aid complying with OSHA 1910 Subpart K [Medical and First Aid];

(b) First Aid kits shall comply with ANSI Z308.1 and unless otherwise specified in the Particular Safety Specification, Class A first aid kits shall be provided at the working area(s) on Site and one (1) Class B safety kit shall be provide at the sick bay;

(c) All persons working at the site need to be aware of their purpose and location. Adequate signage shall be provided at the Site to show the location of the first aid kit(s);

(d) Each first aid kit shall contain the specified items and quantities listed in ANSI Z308 as follows:

(i) Adhesive Bandage;

(ii) Adhesive Tape;

(iii) Antibiotic Application;

(iv) Antiseptic;

(v) Breathing Barrier;

(vi) Burn Dressing (gel soaked);

(vii) Burn Treatment;

(viii) Cold Pack;

(ix) Eye Covering, with means of attachment;

(x) Eye/Skin Wash;

(xi) First Aid Guide;

(xii) Hand Sanitiser;

(xiii) Medical Exam Gloves;

(xiv) Roller Bandage;

(xv) Scissors;

(xvi) Splint;

(xvii) Sterile pad;

(xviii) Tourniquet;

(xix) Trauma pad; and

(xx) Triangular Bandage.

(e) Each first aid kit shall contain any additional items and quantities that may be necessary according to the requirements and location of the Works;

(f) The Contractor shall ensure that the following additional items are provided with each first aid kit:

(i) A list of emergency phone numbers;

(ii) Flashlight and extra batteries; and

(iii) Bottled drinking water.

(g) To prevent disease transmission when giving first aid, first aid kits shall contain PPE such as disposable gloves, CPR breathing barriers, eye protection and like supplies;

(h) First aid kits shall be inspected at least once a month;

The HSO shall also conduct regular checks to ascertain any requirements for the following:

(i) Inventory and reorder supplies;

(ii) Expedite any outstanding manufacturer's response on repair or maintenance issues; and

(iii) Schedule of training and retraining.

(4) Automated External Defibrillator – AED.

(a) Unless otherwise specified in the Particular Safety Specification, and amongst any other first aid equipment to be provided by the Contractor, the Contractor shall provide at least one (1) AED at the Site;

(b) The AED shall be stored at a selected location on the Site where it is most likely to be needed and it must be accessible with the minimum of delay;

(c) All personnel at the site shall be kept informed of the purpose and location and the Contractor shall train a sufficient number of personnel in its use;

(d) Adequate signage shall be provided at the Site to show the location of the AED together with instructions for its use;

(e) The AED shall be regularly inspected in accordance with the manufacturer's instructions and as follows:

(i) Visually inspect looking for dirt, damage, or contamination;

(ii) Inspect electrodes ensuring that they are unexpired and in their original, sealed packages, two sets shall be provided;

(iii) Test primary battery;

(iv) Make sure a backup battery is stored with the AED and test backup battery; and

(v) Keep the AED charged and check it is maintaining a charge.

The HSO shall also conduct regular checks to ascertain any requirements for the following:

(i) Inventory and reorder supplies;

(ii) Follow up with the manufacturer on maintenance issues; and

(iii) Schedule training and retraining.

(f) The AED shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.7: Applicable Standards for AED

	Standard	Title of Standard
1	BS EN 60601-2-4:2011+A1:2019	Medical electrical equipment, Part 2-4: Particular requirements for the safety of cardiac defibrillators

CHAPTER 3: EXISTING UNDERGROUND, CONCEALED AND OVERHEAD SERVICES

3.1 UNDERGROUND AND CONCEALED SERVICES

3.1.1 General

(1) This Section applies where there are existing underground or concealed pipes, cables, wires, ducts and the like within the Site (hereinafter collectively referred to as "Underground or Concealed Services"), which may require locating, preserving, avoiding and protecting, diverting, removing, relocating or replacing by the Contractor. The Employer shall provide, at the request of the Contractor, such reasonable assistance as to allow the Contractor to carry out such work.

(2) If Underground or Concealed Services are the property of a relevant authority and unless otherwise specified in the Particular Safety Specification, the Contractor shall, in accordance with the agreement between the Employer and the owner of Underground or Concealed Services regarding the actual scope of work to be carried out, comply with the official regulations and procedures of the authority.

(3) In the case of Underground or Concealed Services which are the property of a third party, the Contractor shall take the procedure of obtaining permission for the work mentioned in (4) below.

(4) In accordance with the agreement between the Employer and the owner of Underground or Concealed Services regarding the actual scope of work to be carried out, permission for its execution and details of the procedures and requirements (including responsibility for insurance and safety procedures), the Contractor (with reasonable assistance of the Employer) may consult with the owner of Underground or Concealed Services to obtain permission to execute the work following the preparations described in JSSS 3.1.2 [*Preparation and Work Planning*] as well as the requirements of the Contract and the instruction of the Engineer.

(5) In the case of Underground or Concealed Services which are the property of the Employer, the permission mentioned in (4) above shall be deemed to have been provided by the Employer subject to the preparations described in JSSS 3.1.2 [*Preparation and Work Planning*].

3.1.2 Preparation and Work Planning

(1) Unless otherwise specified in the Particular Safety Specification, the Contractor shall make the following preparations prior to commencing any work for locating, protecting, diverting, removing, replacing or the like of any Underground or Concealed Services:

(a) Prepare a Method Statement describing the measures for carrying out the required work and ensuring the safety of all persons engaged thereon;

(b) Prepare an emergency call list and communication procedure;

(c) Obtain particular information from the Employer or relevant authority on the procedures for emergency disconnection/de-energisation of the Underground or Concealed Services in case of an accident;

(d) Provide and use cable avoidance tools or cable locators, trace the position and routes on ground surfaces, walls and floors of all Underground or Concealed Services, mark routes with paint and/or wooden pegs or barriers and clear signage and ensure that no unauthorised work take place within the area;

(e) Conduct careful exploratory hand excavation to locate the exact position, depth and route of the Underground or Concealed Services and proceed to expose and protect same or prepare for the required work; and

(f) The Method Statement shall be revised based on the information obtained from the above locating and exploratory work.

(2) In case Underground or Concealed Services of which existence are predicted at the Site, but not shown in the Contract, the Contractor shall inform the Engineer of the existence for the Engineer's instruction to the Contractor.

(3) Machine excavation shall not be allowed when there is any risk that Underground or Concealed Services may exist in the location or vicinity of the excavation.

(4) The Contractor shall take all measures necessary to ensure the protection and safety of road traffic, pedestrians, Contractor's Personnel and any other persons affected by or potentially affected by the Works as required by the Contract and also by JSSS including JSSS 2.2 [*Risk Control Around the Site*].

3.1.3 Requirements and Precautions

Unless otherwise specified in the Particular Safety Specification, the Contractor shall:

(1) Protect and secure all Underground or Concealed Services throughout the execution of the Works and avoid all damage to such services and adjacent areas, particularly when backfilling, compacting and reinstating surfaces.

(2) Take care not to damage the Underground or Concealed Services when using power tools for example asphalt cutting machine to break through paved surfaces above Underground or Concealed Services.

(3) Take care to safely expose, support and protect any drains, other services (new or existing) which follow or cross the route of Underground or Concealed Services.

(4) Reinstate surface paving with material and methods specified, without leaving any difference in level with surrounding pavement and replace all surface markings and signage.

(5) Adequately test all Underground or Concealed Services after completing any diversion, replacement or alteration work, to ensure the safety and integrity and to avoid any future risk of injury, leakage or pollution.

(6) Implement strict safety and fire prevention measures throughout the work including prohibiting the use of equipment that can create any damage or fire hazard (such as welding, cutting and electrical equipment) in the vicinity of any Underground or Concealed Services conveying flammable, combustible or explosive liquids or gases.

(7) Be aware of and avoid electric shock when excavating for or near any cables, wires or cable ducts, ensure the safety of all Contractor's Personnel and ensure the provision and use of PPE.

(8) Be aware of and avoid subsidence or collapse of excavations due to Contractor's Equipment, vehicles, other equipment or other activities being too close to any excavation.

(9) Provide adequate temporary barriers, signage, markings and lighting to all areas where work on or adjacent to Underground or Concealed Services is taking place.

(10) Assign a full time Spotter in accordance with the requirements of JSSS 2.4 [*Spotters*] when work in progress poses any risk to the Underground or Concealed Services, Contractor's Personnel or the Works.

(11) Provide electrical cable marker tiles over all buried wires, cables and cable ducts to warn and protect against the risk of future mechanical damage to same.

(12) Provide permanent markers or signage at the surface to warn of the presence, route and any danger of any Underground or Concealed Services.

(13) Prepare as-built drawings of Underground or Concealed Services after completion of the associated work showing accurate positions, depth, sizes, routes and details and submit to the Engineer.

3.1.4 Instruction for ~~Information to~~ Contractor's Personnel

コメントの追加 **[MJD103]:** To make consistent with 4.1.4 and 5.2.1

Prior to the start of work to or in the vicinity of Underground or Concealed Services, the Contractor shall instruct relevant Contractor's Personnel of the following:

(1) Location of live cables and equipment.

(2) Risk of electric shock from live cables or equipment.

(3) Separation distances from live cables and equipment.

(4) Work procedure.

(5) Preventive measures against electric shock.

(6) PPE to be used.

(7) Electric shock treatment in accordance with JSSS 3.1.5 [*Electric Shock Treatment*].

(8) Response in the event of an accident in accordance with JSSS 1.24 [*Accident Response Plan*] and JSSS 1.25 [*Measures at the Time Accidents Occur*].

(9) Appropriate procedures in the case of accidents arising from contact with or damage to any other services.

3.1.5 Electrical Shock Treatment

The following measures shall be taken in the event of an electric shock accident.

(1) Prohibit workers from touching the chassis or body of any Contractor's Equipment or materials that have become electrified by any live circuit and keep all Contractor's Personnel well away from such equipment, materials and the working area.

(2) When the unit of Contractor's Equipment which is in contact with or in close proximity to a live circuit does not get an electrical shock, the operator shall immediately move the equipment to an adjacent safe location.

(3) When it is not possible to move the Contractor's Equipment away, the operator shall remain in the cabin until the affected live circuits are de-energised.

(4) Prevent secondary electric shock accident by permitting only those who have received training in electrical rescue to rescue the casualties of an electric shock accident.

(5) Immediately perform primary lifesaving measures such as CPR, if necessary use an Automated External Defibrillator (AED) and call for emergency medical support.

(6) Report to the Engineer in accordance with JSSS 1.25 [*Measures at the Time Accidents Occur*] and where applicable to the representative of the relevant authority.

3.2 OVERHEAD SERVICES

3.2.1 General

(1) This Section applies where there are exposed or overhead power or communication cables, wires, ducts, pipes and the like within the Site (hereinafter collectively referred to as "Overhead Services"), and which may require preserving, protecting, diverting, removing, relocating or replacing by the Contractor. The Employer shall provide, at the request of the Contractor, such reasonable assistance as to allow the Contractor to carry out such work.

(2) If Overhead Services are the property of a relevant authority and unless otherwise specified in the Particular Safety Specification, the Contractor shall, in accordance with the agreement between the Employer and the owner of Overhead Services regarding the actual scope of work to be carried out, comply with the official regulations and procedures of the relevant authority.

(3) In the case of the Overhead Services which are the property of a third party, the Contractor shall take the procedure for the works mentioned in (4) below.

(4) In accordance with the agreement between the Employer and the owner of Overhead Services regarding the actual scope of work to be carried out, permission for its execution and details of the procedures and requirements (including responsibility for insurance and safety procedures), the Contractor (with reasonable assistance of the Employer and Engineer) may consult with the owner of Overhead Services to obtain a permission of the owner of Overhead Services to execute the works following the preparations described in JSSS 3.2.2 [*Preparation and Work Planning*] as well as the requirements of the Contract and the instructions of the Engineer.

(5) In the case of Overhead Services which are the property of the Employer, the permission mentioned in (4) above shall be deemed to have been provided by the Employer subject to the preparations described in JSSS 3.2.2 [*Preparation and Work Planning*].

3.2.2 Preparation and Work Planning

(1) Unless otherwise specified in the Particular Safety Specification, the Contractor shall make the following preparations prior to commencing any work for protecting, diverting, removing, replacing or the like of any Overhead Services:

(a) Prepare a detailed Method Statement describing the measures for carrying out the required work and ensuring the safety of all persons engaged thereon;

(b) Prepare an emergency call list and communication procedure; and

(c) Obtain particular information from the Employer or relevant authority on the procedures for emergency de-energisation of the Overhead Services in case of an accident.

3.2.3 Requirements and Precautions

Unless otherwise specified in the Particular Safety Specification, the Contractor shall:

(1) Protect and secure all Overhead Services throughout the execution of the Works.

(2) Adequately test all Overhead Services after completing any diversion, replacement or alteration work, to ensure the safety and integrity and to avoid any future risk of injury, leakage or pollution.

(3) Be aware of and avoid electric shock when working near any cables or wires, ensure the safety of all Contractor's Personnel and ensure the provision and use of PPE.

(4) Be aware of and avoid subsidence or collapse of support structures of Overhead Services due to excavations being too close.

(5) Provide adequate temporary barriers, signage, markings and lighting to all areas where work on or adjacent to Overhead Services is taking place.

(6) Provide insulating protective pipe or casings to the Overhead Services.

(7) Create safe zones free from danger arising from the use Contractor's Equipment by demarcating the route and turning ranges and providing adequate signage and barriers.

(8) Prevent Contractor's Equipment, wire ropes or chains from entering the safe zones and limit the moving range of crane jibs and other high equipment.

(9) Assign a full time Spotter in accordance with the requirements of JSSS 2.4 [*Spotters*] when work in progress poses any risk of close proximity or contact with Overhead Services, Contractor's Personnel or the Works.

(10) Maintain a safe separation distance between any charged electrical circuit and Contractor's Personnel, Contractor's Equipment, Scaffolding and any other Temporary Works, wire rope, tools and materials. The separation distance shall be the maximum relevant value shown Table 3.2.1 [*Safe Separation Distances*] any values that may be prescribed by the Laws of the Country or any values that may be prescribed by the regulations of the relevant authority:

Table 3.2.1: Safe Separation Distances

	Circuit Voltage	Separation Distance
1	Extra-high Voltage (7000V and above)	2m (20cm to be added for every 10,000V increase and fraction from 60,000V)
2	High Voltage (600V up to 7000V)	1.2m
3	Low Voltage (Less than 600V)	1m

3.2.4 Instruction for ~~Information to~~ Contractor's Personnel

コメントの追加 **[MJD104]:** To make consistent with 4.1.4 and 5.2.1

Prior to the start of work to or in the vicinity of Overhead Services, the Contractor shall instruct relevant Contractor's Personnel of the same items as listed in JSSS 3.1.4 [*Instruction for ~~Information to~~ Contractor's Personnel*]

3.2.5 Electrical Shock Treatment

The Contractor shall take the measures prescribed in JSSS 3.1.5 [*Electrical Shock Treatment*].

CHAPTER 4: CONTRACTOR'S EQUIPMENT

4.1 GENERAL REQUIREMENTS

4.1.1 Scope

(1) This Chapter specifies the safety requirements for Contractor's Equipment which shall include mobile equipment, static equipment, small equipment, tools and electric power equipment as further described in the following Clauses.

(2) The Contractor shall ensure the safety of all Contractor's Personnel, Employer's Personnel and any other persons that are on the Site, adjacent to the Site and other places where they may be affected by Contractor's Equipment in operation, standby or storage or when such equipment is being maintained or transported.

(3) For additional requirements for hoisting, rigging and cranes, refer to JSSS 5 [*Hoisting and Rigging*].

(4) Any reference to "operator" in this Chapter and elsewhere in JSSS shall be deemed to include "driver" also.

(5) Mobile equipment including wheeled or tracked, self-propelled construction machinery such as:

(a) Surface excavation and spoil movement equipment for bulk excavation, grading and levelling, such as bulldozers, graders and tractor excavators;

(b) Excavators such as backhoes, face shovels, power shovels;

(c) Loaders such as payloaders and face shovels;

(d) Dump trucks for removal or importation of spoil;

(e) Specialist foundation equipment such as pile driving and boring equipment;

(f) Compaction and surface treatment equipment such as smooth or sheepsfoot rollers, pneumatic and vibration rollers, asphalt finishers;

(g) Mobile cranes;

(h) Piling equipment;

(i) Concreting equipment such as ready-mixed concrete trucks and pump trucks;

(j) Demolition equipment such as breakers, concrete crushers and demolition grippers;

(k) Transportation Equipment, such as cars and buses for Contractor's Personnel and trucks and trailers for transporting Goods to, around and from the Site; and

(l) Workboat for Diving Works.

(6) Static equipment includes powered stationary equipment such as:

(a) Stone crushing plants and screening equipment;

(b) Concrete and asphalt concrete batching plants;

(c) Tower cranes, derrick cranes;

(d) Elevators;

(e) Material conveyors;

(f) Air compressors;

(g) Engine Generators, submersible pumps and engine pumps; and

(h) Reinforcement, cutting and bending machines.

(7) Small equipment and tools such as:

(a) Hand steered vibrating rollers;

(b) Plate compactors and vibratory rammers;

(c) Portable conveyors;

(d) Pipe bending machines;

(e) Drills, hammers, breakers, compactors and compressors;

(f) Wood processing equipment;

(g) Independent concrete mixers;

(h) Air extract or blowing equipment for improving the working area environment;

(i) Jack hammers, drills;

(j) Chain saws;

(k) Hand operated equipment such as jacks, winches, lever hoists; and

(l) Hand tools such as wrenches, chisels, hand saw, picks, hammers.

4.1.2 Compliance Standards

(1) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], the Contractor shall comply with the requirements of this Chapter, read jointly with and including the Provision and Use of Work Equipment Regulations 1998 (PUWER), HSE Guidance in UK.

(2) In accordance with these regulations, together with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the Contractor shall ensure that all Contractor's Equipment provided for use upon the Works is:

(a) Suitable and fit for the purpose for which it is intended;

(b) Safe for use, maintained in a safe condition and inspected to ensure it is correctly installed and used and does not subsequently deteriorate;

(c) Used only by people who have received adequate information, instruction and training;

(d) Accompanied by suitable health and safety measures, such as protective devices and controls. These shall include emergency stop devices, adequate means of isolation from sources of energy, clearly visible markings and warning devices; and

(e) Used for the designed and intended purpose.

4.1.3 Manufacturer's Documentation

The Contractor shall obtain a copy of the following official Manufacturer's documentation for all units of Contractor's Equipment:

(1) Safety instructions and recommendations.

(2) Operation, maintenance and repair manual.

The Contractor shall inform all relevant Contractor's Personnel of the content of the same, provide further safety training as necessary and ensure full compliance by all relevant Contractor's Personnel with such instructions and recommendations to assist in enforcing the safe use of Contractor's Equipment.

4.1.4 Instruction for Contractor's Personnel

Further to the requirements of JSSS 1.7 [*Contractor's Safety Plans*], JSSS 1.9 [*Contractor's*

Method Statements] and JSSS 1.15 [*Contractor's Safety Management Activities*], the Contractor shall include details of the following in the Method Statement and Safety Plan for works involving the use of Contractor's Equipment and shall fully inform all relevant Contractor's Personnel associated therewith of all requirements before the commencement of any such operations, such as:

(1) Scope of work, locations and areas, work methods, dimensions, levels and quantities to be achieved.

(2) Types, capacities and numbers of units.

(3) Workplaces, area limits and operational routes, restricted areas, locations of caution signs and fences.

(4) Preservation of safe access, walkways and footpaths around the working areas and transportation areas.

(5) Identities and roles of and location(s) for Spotters and the communication and signalling requirements, including equipment to be used.

(6) Working conditions and required mitigation measures for workers and any other persons against vibration, noise, dust and the like.

(7) Safety measures in the working area, any nearby areas for storage of Dangerous Goods or Hazardous Substances, Hazardous Areas, Operational Areas or areas where Dangerous Work is taking place.

(8) Potential danger to any persons who may be affected by the use of Contractor's Equipment and the required measures to avoid any accident or injury.

(9) Any potential hazards in the use of Contractor's Equipment including those which may create a risk of falling or overturning.

(10) Restrictions to the movement and operation of Contractor's Equipment such as existing structures, foundations, surfaces, underground or overhead services and Dangerous Goods storage.

(11) Measures to be taken in case of breakdown, defect or fault in Contractor's Equipment including location of areas for inspection and maintenance.

(12) Name of the authorised operator for each unit of Contractor's Equipment when authorised operator is necessary to be assigned.

(13) Name and contact of the HSO to inform when there are any requirements for inspection, maintenance and repair of Contractor's Equipment.

4.1.5 Safety Training

(1) The Contractor shall provide the relevant Contractor's Personnel with health and safety training in accordance with JSSS 1.19 [*Safety Training Generally*] taking account of the characteristics of the particular types of Contractor's Equipment and including:

(a) Functions, performance, operation methods, inspection items, inspection method of safety and emergency alarm devices;

(b) Operation procedure, signal and communication method at starting time of the operation, and daily inspection;

(c) Lockout and tagout procedures for shutting down operation, turning off the power, locking the starter and necessary measures for the time of cleaning and inspection of the Contractor's Equipment;

(d) Stop of the operation of the Contractor's Equipment when an abnormality occurs and report to the person in charge;

(e) Prohibition of removal or isolation of safety devices; and

(f) Risks during operation of the Contractor's Equipment.

(2) Particular safety training for transportation equipment operators shall be for the purpose of preventing of traffic accidents on and off the Site and shall include:

(a) Driving rules in general;

(b) Compliance with speed limits, signs, alcohol use, drugs and all other requirements the Laws of the Country;

(c) Driving methods to avoid contact and collision with other persons, cycles, motorcycles and other vehicles;

(d) Driving methods to properly overtake other vehicles and to be undertaken by others;

(e) Driving methods when encountering holes, bumps or obstacles on the road;

(f) Required inspection and maintenance before starting operation; and

(g) Proper use of vehicles including behaviour and control of passengers, prevention of overcrowding, overloading and unauthorised passengers.

4.1.6 Requirements for Operators

Further to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*], the Contractor shall ensure that operators are appropriately qualified, skilled and experienced in operation of the Contractor's Equipment to which they are assigned and duly certified as such by the HSO.

(1) Operators shall safely and competently operate the Contractor's Equipment.

(2) Operators shall be fully aware of the following:

(a) Work procedures, hazards and operation methods;

(b) The need to stop the operation when any defect or abnormality is detected;

(c) The identity of and location(s) for Spotters and the communication and signalling requirements including equipment to be used; and

(d) The procedures in case of emergency.

(3) Operators shall:

(a) Keep all safety devices including emergency-alarm and stop-devices activated;

(b) Keep their assigned unit clean and carry out regular inspections prescribed by the Contractor before start of operation;

(c) Inform the Contractor's maintenance personnel of any apparent defect or maintenance requirements; and

(d) Not use such Contractor's Equipment until any required repair or maintenance is performed.

4.1.7 Signalling

(1) Signalling between operators and any associated workers shall only be carried out by designated personnel.

(2) Spotters shall be located in a safe place and where they can clearly see and be seen by the operator.

(3) When it is not possible for Spotters to give direct visible and audible signals to the operator, other systems including hand-held radios or videophone must be provided and

used.

4.2 INSPECTION, MAINTENANCE AND REPAIR

4.2.1 Requirements Generally

(1) Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the HSO shall ensure that all Contractor's Equipment is inspected, fully maintained and operational when it is mobilised to the Site. Thereafter all Contractor's Equipment shall be inspected, maintained and repaired before the commencement of the first and of all subsequent days of operation.

(2) Inspections shall include all items necessary to ensure the safe performance of the Contractor's Equipment including the following examples and any further requirements due to the characteristics, capability and condition of the Contractor's Equipment and in compliance with the manufacturer's official operation, maintenance and repair manual.

(3) When mobilising Contractor's Equipment to the Site and before commencement of operation, the Contractor shall:

(a) Inspect all units of Contractor's Equipment to ensure that:

(i) all components are installed and functioning; and

(ii) adequate covers and safety guards (to prevent contact with moving parts) are provided and securely fixed.

(b) Ensure as a minimum that the daily and periodical check items have already been inspected and recorded;

(c) Ensure that all inspection and maintenance records are available for inspection by the Engineer if and when required in compliance with JSSS; and

(d) If any inspection and maintenance records are incomplete or not available, the Contractor shall carry out inspections and maintenance to ensure that a full and acceptable record is available for all units of Contractor's Equipment.

In relation with the above, it should be noted that Contractor's Equipment shall be in a working and safe condition and fully compliant with JSSS when it is mobilised to the Site. The Engineer may refuse to accept delivery to the Site any Contractor's Equipment which does not meet the requirements stipulated in JSSS.

(4) The Contractor shall undertake the following daily inspection items, (or at intervals required by the manufacturer's official operation, maintenance and repair manual), carry out any necessary maintenance and repair, and when necessary obtain re-certification of the HSO before any further operation of the Contractor's Equipment is permitted:

(a) Operating condition of engine, gearbox(s), drive shafts, pulleys and main components, emergency stop and safety devices, any defects or abnormalities in covers, doors and enclosures;

(b) Abnormal sounds, vibrations or smell;

(c) Leaks, levels and condition of lubricants, coolant, hydraulic fluid levels, and the like;

(d) Lights and indicators;

(e) Brakes, clutches, steering and operating devices and working devices;

(f) Cables, slings, ropes and chains;

(g) Protective covers are adequately provided over all rotating or moving parts;

(h) Attachments and tools such as buckets, grabs and the like;

(i) Cleanliness of each unit or item of Contractor's Equipment;

(j) Cleanliness of each working area and removal of obstructions;

(k) Availability of emergency kits such as warning flares and triangles, fire extinguisher, first aid kit and the like, as required by the Laws of the Country with the testing and expiration date clearly indicated; and

(l) Any additional inspection items stipulated in the manufacturer's official operation, maintenance and repair manual.

(5) The Contractor shall undertake the following periodic inspection items, (at intervals required by the manufacturer's official operation, maintenance and repair manual), carry out any necessary maintenance and repair, and when necessary obtain re-certification of the HSO before any further operation of the Contractor's Equipment is permitted:

(a) Engine compression pressure, valve clearance and other relevant parts of prime energy unit;

(b) Gearbox, clutch, transmission, propeller shaft, differential and other parts of power transmission devices;

(c) Drive wheels, idling wheels, vertical trunk rollers, belts, tires, wheel bearings and other parts of traveling devices;

(d) Springs, shock absorbers and other parts of suspension devices;

(e) Left and right rotation angle of steering wheel, knuckle, rod, arm and other parts of control devices;

(f) Brake capacity, brake drum, brake shoe and other parts of braking systems;

(g) Blades, booms, link mechanisms, buckets, wire ropes and other parts of work equipment;

(h) Hydraulic pump, hydraulic motor, cylinder, safety valve and other parts of hydraulic equipment;

(i) Voltage, amperage and relevant performance and components of electrical systems;

(j) Body, operating devices, head guards, back stoppers, access doors, protective covers, ladders and steps, locking devices, warning alarm devices, direction indicators, tyre air pressures and lightning devices; and

(k) Any additional inspection items stipulated in the manufacturer's official operation, maintenance and repair manual.

(6) Operation of any unit of Contractor's Equipment shall not be allowed to commence until the HSO has certified that it is safe to do so.

(7) The Contractor shall prepare standard checklists for all inspections and the HSO shall ensure that these are complied with, completed and signed and kept as a record in accordance with JSSS 1.32 [*Health and Safety Records*].

4.2.2 Defects and Repair During Operation

(1) If an operator notices any defect or abnormality in the Contractor's Equipment during operation (such as abnormal noise, temperature, smell, etc.) the operator shall stop the operation immediately.

(2) Necessary repair shall be provided by qualified mechanics, electricians or engineers.

(3) The HSO shall ensure that no further operation shall resume unless the above has been complied with and the Contractor's Equipment has been re-inspected by him and certified in accordance with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety*

Equipment and PPE].

4.3 SAFETY REQUIREMENTS

4.3.1 General Safety Measures

In addition to other safety and health requirements of JSSS, the Contractor shall:

(1) Ensure that there is sufficient lighting to perform all work safely and provide artificial lighting where necessary.

(2) Ensure that Contractor's Equipment is equipped with suitable protective safety devices such as covers, screens, guards, contact prevention devices, auto-stop devices, enclosures, barriers and the like as necessary to prevent injury to personnel from equipment or parts of equipment, where:

(a) There may be any risk of persons being hit by, caught or injured or entangled in any ropes, cables, sheaves, moving or rotating parts; and

(b) There may be any risk of persons being hit by flying debris, offcuts, or the like produced by the equipment.

(3) Ensure that Contractor's Equipment is equipped with suitable ladders and steps for access to the operating cab and also to all other levels and components to permit inspection, assembly, maintenance and repair of the equipment. When any Contractor's Personnel need to work at a height of 2 m or more, the Contractor shall take suitable measures in accordance with JSSS 2.5 [*Fall Prevention*], including the provision and use by such Contractor's Personnel of guide ropes and PFAS.

(4) Prohibit personnel other than operators, workers and other authorised personnel from entering the place where Contractor's Equipment is in use for the Works.

(5) Ensure that each unit of Contractor's Equipment is provided with appropriate numbers and types of fire extinguishing equipment (where such equipment is necessary) and ensure that all operators and other Contractor's Personnel are trained in the use of such equipment and in fire safety procedures.

(6) Ensure that each working area where Contractor's Equipment is in use, is provided with appropriate numbers and types of first aid equipment and such other facilities that are necessary to ensure safety and treat accidents and ensure that all operators and other Contractor's Personnel are trained in the use of such equipment and first aid procedures.

(7) Post a label clearly showing the name of the operator on each unit of Contractor's Equipment together with the name and contact number of the HSO or a person in charge who shall be contacted in the event of breakdown or fault.

(8) Ensure that only the authorised operating, inspection and maintenance personnel access the mechanical, electrical and other components and systems of the Contractor's Equipment and prohibit all other persons from such access.

(9) Ensure that any inspection and maintenance covers, safety guards to prevent contact with moving parts and the like are not disabled, tampered with or removed except for repair, maintenance or any other justifiable reason.

(10) Ensure that installation, assembly, testing commissioning, operation and dismantling of all Contractor's Equipment is carried out under the direction of an Operation Leader, appropriately qualified, skilled and experienced in such activities for the particular type and capacity of equipment and in accordance with the manufacturer's operation, maintenance and repair manual.

4.3.2 Safety Measures During Cleaning, Inspection and Maintenance

The Contractor shall take the following measures for safety of Contractor's Personnel during cleaning, inspection and maintenance. Until such measures are taken, the Contractor shall

prohibit any cleaning, inspection or maintenance personnel or other workers from entering the areas:

(1) Put Contractor's Equipment, wherever possible on a level surface. Where such is not possible, ensure that wheels are securely chocked to prevent any movement of equipment.

(2) Provide safety blocks or supports under cargo bed of vehicles to prevent them descending unexpectedly.

(3) Lower attachments (buckets and blades etc.) to the ground during any inspection and maintenance. Where unavoidable ensure that attachments are securely supported to prevent any fall or downward movement.

(4) Stop and isolate the functions completely, establish and implement lockout and tagout procedures to prevent accidents during inspection and maintenance. The lockout and tagout system shall fully isolate the starting system.

(5) Post warning signs to prohibit start-up or use of any Contractor's Equipment.

(6) Assign a Spotter.

(7) Ensure that only authorised personnel have access to the cleaning, inspection and maintenance area.

4.3.3 Safety Measures During Operation

(1) Unless otherwise specifically permitted by the HSO, all work involving the use of Contractor's Equipment shall be designated as Dangerous Work and the Contractor shall enclose the working area with temporary fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry*].

(2) The Contractor shall also ensure that:

(a) All operators are able to clearly see and communicate effectively with Spotters and other relevant persons;

(b) No Contractor's Equipment is operating beyond the capacity or operational limits officially prescribed by the equipment manufacturer;

(c) The surfaces upon which the Contractor's Equipment is working, and any adjacent surfaces and areas over which access is required, are sound, safe and suitable to support the equipment and the Contractor shall provide any temporary foundations, hardstanding or other surfaces, sleepers or steel plates as are necessary to ensure safety and stability of the equipment at all times;

(d) Spotters are always be provided to enable precise movement and positioning of Contractor's Equipment, particularly when reversing, loading and unloading, in dangerous areas or when the operator's view is not clear and at intersections with public roads;

(e) Where there is any risk of turnover, slippage, collapse or fall, Contractor's Equipment is equipped with seatbelts or safety harnesses and that such seatbelts and harnesses are used;

(f) Where there is any risk of turnover, slippage, collapse or fall, Contractor's Equipment is equipped with a "Roll-Over Protective Structure" (ROPS);

(g) Where there is any risk of injury to operators due to Falling Objects Contractor's Equipment is equipped with a "Falling Object Protective Structure" (FOPS);

(h) Operators are aware that they shall pay careful and constant attention to the position of any workers near to the operating area and particularly when mobile equipment is reversing;

(i) Operators of excavating equipment are aware that excavator buckets shall never pass over the operator's seat of any other Contractor's Equipment;

(j) Workers shall not enter under a bucket which is loading material and shall keep away from dump trucks when loading or unloading materials; and

(k) No person shall ride on trucks, trailers or cargo bed other than cabin of vehicles unless permitted by the Laws of the Country.

4.3.4 Safety Measures When Mobile Equipment Is Not In Use

(1) When mobile equipment is not in use, the Contractor shall ensure that operators:

(a) Park on surfaces which are level, sound, safe and suitable to support the equipment;

(b) Securely chock all wheels to prevent any movement;

(c) Lower attachments (buckets and blades etc.) to the ground;

(d) Stop and isolate the functions completely, fully engage brakes and lock the brake pedal; and

(e) Lock the equipment and store the starter key in the designated place.

(2) The Contractor shall prohibit all persons other than authorised personnel from entering the area where Contractor's Equipment is parked.

4.3.5 Safety Measures During Connecting and Removing of Attachments

The Contractor shall take the following measures when connecting and removing attachments (buckets, blades etc.) to Contractor's Equipment:

(1) Prevent any accident due to movement or fall of attachments by taking safety measures for example, connecting and removing attachments after locating them on stable and sound frames or on the ground.

(2) Prevent accidental movement or operation causing persons to be trapped attachments by taking safety measures for example, parking of the Contractor's Equipment such that it cannot move (as mentioned in JSSS 4.3.4 (1) (a), (b) and (d)) and stop the engine.

4.3.6 Safety Measures During Loading and Transporting of Contractor's Equipment

The Contractor shall:

(1) Select and use trailers with associated ramps, other loading equipment and restraints which are suitable for the particular type, size and weight of the Contractor's Equipment and fit for the purpose for which they are intended.

(2) Select location and areas for loading and unloading which have sufficient space and surfaces which are level, sound, safe and suitable to support all of the equipment.

(3) Securely chock all wheels of trailers to prevent any movement.

(4) Stop and isolate the functions of trailers and load and fully engage brakes.

(5) Ensure trailers are equipped with tie down devices to allow secure fixing of load.

(6) Ensure that the weight and height of the loaded Contractor's Equipment do not exceed actually required or legal limits.

(7) Ensure that all lights, brakes, steering and safety devices are working properly.

(8) Ensure that suitable, clear and legally compliant signage is attached to the trailer visibly indicating the maximum safe loading capacity, height of load, width, speed limits and any other restrictions or required information.

(9) Ensure that trailers are loaded evenly.

(10) Ensure that Contractor's Equipment loaded onto trailers is braked, wedged, securely locked in position and tied to the trailer with adequately sized chains, slings and other fixings and tensioned to prevent any movement during transit.

(11) Place any attachments on trailers and securely tie down.

(12) Inspect the tie-down tensioning, before and at intervals during transportation of Contractor's Equipment to ensure that there is no slackening.

(13) Inspect chains, slings and other fixings for securing transported Contractor's Equipment and if any abnormality is found, replace immediately.

4.3.7 Safety Measures During Loading and Transporting of Goods

The Contractor shall:

(1) When transporting heavy or long Goods on public roads, select roads on which the transportation does not pose danger to other traffic, third parties, structures adjacent to the transportation route, obtain all necessary permission from the relevant authorities including police and road authority before commencement of transportation and comply with all requirements.

(2) When transporting heavy or long material Goods within the Site, select suitable routes where the transportation does not pose danger to existing permanent or temporary buildings or structures or other works and obtain the consent of the HSO before commencement of the transportation and comply with all requirements.

(3) Ensure that Goods are loaded evenly.

(4) Secure all loads with adequate and tensioned slings and cover with protective sheets, to avoid any fall or collapse of the conveyed articles and prevent any risk to workers and third parties.

(5) Inspect slings for securing transported materials and if any abnormality is found, replace immediately.

4.3.8 Temporary Roads in the Site

The Contractor shall:

(1) Take measures to ensure that that Temporary Roads in the Site are of suitable construction, of sufficient width, free from potholes, uneven settlement and collapse.

(2) Provide signs indicating height and weight restrictions, bends, speed limits, intersections, dangerous places and the like (e.g. road shoulders, cliff edges and the like).

(3) Separate roads for vehicles and walkways for workers and provide passing area for vehicles at places where the road is narrow.

(4) In large construction sites, provide exclusive transport roads which are one-way if possible and provide passing areas on narrow roads.

(5) Provide sufficient lighting facilities at necessary places along roads when work operating in night.

4.3.9 Additional Requirements for Static Equipment

(1) The Contractor shall design and construct suitable foundations and support structures for static equipment with paved surfaces, screens, fencing and associated facilities for storage of material and product and for offices, access and the like all of which shall be suitable and fit for the purpose for which they are intended. Unless otherwise stated in the Contract, all such foundations, support structures, paved surfaces, fencing, screens and associated facilities shall be demolished and removed and disposed of safely and in an environmentally acceptable manner by the Contractor on or before completion and taking-over of the Works. All areas shall be backfilled, restored to a safe and suitable

コメントの追加 [SS105]: 15. (48)

コメントの追加 [SS106]: No. 48
JICA inquired if "on or before" means that they can be demolished without waiting till completion and taking over all the Works.
If yes, the sentence of "on or before" will be left as they are.
Please reply to this inquiry.

コメントの追加 [MJD107R106]: Yes, it can be at any time before taking-over if possible, i.e. as soon as use is finished.

Please advise

コメントの追加 [SS108R106]: No change is made.

condition, cleaned and landscaped.

(2) Unless otherwise stated in the Contract, all remaining aggregate, rock, cement, bitumen and the like used by or processed with the static equipment shall be removed and disposed of safely and in an environmentally acceptable manner by the Contractor on completion of use of the static equipment. All areas shall be backfilled, restored to a safe and suitable condition, cleaned and landscaped.

4.3.10 Additional Requirements for Personnel and Goods Elevators and Material Conveyors

(1) General

(a) The requirements for conveyors stipulated in this Clause apply to material conveyors;

(b) The Contractor shall undertake the daily and periodical inspection in addition to the items stipulated in JSSS 4.2 [*Inspection, Maintenance And Repair*], (or at intervals required by the manufacturer's official operation, maintenance and repair manual), carry out any necessary maintenance and repair and when necessary obtain re-certification of the HSO before any further operation of the Contractor's Equipment is permitted; and

(c) The Contractor shall post the maximum load capacity and any restrictions on the use.

(2) Personnel and Goods Elevators

(a) Additional daily inspection items shall include checking for defects or operational faults with the following:

(i) Elevator enclosures, doors, guide-rails and runners;

(ii) Emergency stop and alarm systems;

(iii) Power, lighting and control systems;

(iv) Interphone systems;

(v) Brakes, clutches; and

(vi) Sheaves and pulleys.

(b) Additional periodical inspection items shall include checking for defects or operational faults with the following:

(i) Daily inspection items;

(ii) Wire ropes;

(iii) Winch and its foundation; and

(iv) Supporting structures, guy ropes, fixings and anchors.

(3) Material Conveyors

(a) Additional safety measures:

(i) Conveyor systems shall be equipped with an audible warning signal to be sounded immediately before starting up the conveyor;

(ii) Means for stopping the motor or engine shall be provided at the motor or engine location;

(iii) Emergency stop switches shall be provided and be arranged so that the conveyor cannot be started again until the actuating stop switch has been reset to running or "on" position;

(iv) Where a conveyor passes over working areas, roads and walkways, suitable

guards shall be provided to prevent fall of the materials being conveyed; and

(v) Riding of workers on the moving belts shall be prohibited.

(b) Additional daily inspection items shall include checking for defects or operational faults with the following:

(i) Overrun and reverse run prevention devices;

(ii) Emergency stop switches; and

(iii) Guards.

(c) Additional periodical inspection items, shall include for checking for defects or operational faults with daily inspection items.

4.3.11 Additional Requirements for Small Equipment and Tools

(1) Accessories and attachments shall be the standard types obtained from or recommended by the manufacturer of the equipment to which they are connected.

(2) Any repairs shall be carried out by competent persons approved by the HSO.

(3) All small equipment and tools shall be tested by the HSO as safe for use after any repair or replacement of parts, before such equipment is put back into use.

4.3.12 Additional Requirements for Electric Powered Equipment

(1) Electric powered equipment specified in this Clause shall include portable electric powered mobile equipment or tools and shall form a part of the small equipment and tools listed in JSSS 4.1.1 (7).

(2) The Contractor shall undertake the following additional daily inspection items, (or at intervals required by the manufacturer's official operation, maintenance and repair manual), carry out any necessary maintenance and repair and when necessary obtain re-certification of the HSO before any further operation of the Contractor's Equipment is permitted:

(a) Defects or operational faults with grounding such as disconnection of grounding wire and insecure fixing of grounding electrodes;

(b) Damage to insulation and protective coverings of all wires and cables including flexible cables; and

(c) Damage to plugs, sockets, transformers and all wiring fittings and appliances.

(3) The Contractor shall comply with the following additional safety requirements:

(a) Use waterproof switches and socket outlets with covers, securely fixed and located in accessible and dry places;

(b) Label and paint electrical power and switch boxes with warning signs and coloured hazard markings;

(c) Use rubber cabtyre cables for all electrical power equipment;

(d) Provide grounding to all electrical power supply systems with GFCI or RCD in accordance with JSSS 6.7.3 [*General Safety Requirements*];

(e) Avoid hanging electric cables and wires directly on nails, reinforcement or Scaffolding and the like to prevent damage to the insulation and protective covering;

(f) Turn off the power before repairing, moving or maintaining electric power equipment;

(g) Replace fuses with correct type and rating, prohibit replacing fuses with a higher

rating or with iron or copper wire;

(h) Ensure that fuses are replaced by an authorised person;

(i) Prevent any use of electric power equipment from use in the rain, or when the user is wet, standing in water or is not wearing rubber soled insulated footwear or when the electric power equipment is wet;

(j) When any operational fault is identified immediately turn off the power, unplug and stop using the equipment and advise (or hand to) the HSO;

(k) Ensure that workers using electric power equipment wear appropriate PPE suitable for the electric power equipment in use such as working clothes, protective helmets, safety shoes, eye and face protection, ear protection; and

(l) When electric shock accident occurs, unplug and stop using the equipment and advise (or hand to) the HSO and take measures in accordance with JSSS 1.25 [*Measures at the Time Accidents Occur*].

4.3.13 Additional Safety Measures during Adverse Weather

Further to the requirements of JSSS 2.7 [*Adverse Weather Requirements*], the Contractor shall ensure that Contractor's Equipment is parked in a stable and secure state by taking all necessary measures including:

(1) Dropping the jib, boom, arm and attachments to ground level and securing where necessary with adequate anchors and chains.

(2) If heavy rain and flooding can be anticipated, moving Contractor's Equipment to higher ground or to places where the risk of instability is limited.

(3) Removing snow or ice.

4.4 ROPES, SLINGS AND CHAINS

4.4.1 Requirements Generally

(1) The Contractor shall ensure that untested, uncertified, broken, damaged, deformed or defective ropes, chains or slings shall not be used.

(2) The safety factor for wire ropes, slings and chains shall be as recommended by the manufacturer of each type.

(3) Requirements for ropes, slings and chains shall be as specified in JSSS 5.4 [*Rigging Equipment*].

4.5 ALTERNATIVE USE OF CONTRACTOR'S EQUIPMENT

4.5.1 Requirements Generally

The Contractor shall not use Contractor's Equipment for any other purpose than the purpose for which it is designed and other than the purpose recommended by the manufacturer.

Use of Contractor's Equipment for any other purpose than the originally intended purpose are allowed only if it is not prohibited by either of the Laws the Country and the manufacturer's official operation, maintenance and repair manual and subject to HSO's approval after reviewing all the safety aspects.

In particular, when equipment for excavation is to be used for lifting, the HSO shall, in addition to other requirements provided in JSSS, confirm:

(1) Rigging Equipment (such as hook) is attached on an appropriate part of the excavation equipment (e.g. arm or bucket).

(2) Arms, bucket, Rigging Equipment have enough strength to lift the load.

(3) The lifting devices such as hook and shackles are firmly attached to arm or bucket of the

equipment.

(4) The lifting capacity for alternative use is confirmed by loading tests at the Site.

(5) Ensure that operators have accurately determined the total weight of the load, taking account of the weight of any attachments, the reach and angle and configuration of the equipment and have informed the HSO of this and obtained his permission before commencing the operation.

4.6 HIRED/LEASED CONTRACTOR'S EQUIPMENT

4.6.1 Requirements Generally

(1) Contractor's Equipment from hire or lease companies shall comply with all of the requirements of JSSS as if it were the Contractor's own property, in particular the Contractor shall ensure compliance with the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

(2) The Contractor shall ensure that the hire/lease companies have performed all necessary inspection, maintenance and repair works before the Contractor's Equipment is mobilised to the Site and that the following is provided with the equipment to the Contractor upon mobilisation and is available for the inspection of the Engineer:

(a) Inspection and maintenance records;

(b) Operation, repair and maintenance manuals; and

(c) Spare and replacement parts, tools, maintenance equipment, lubricants, filters, hydraulic fluids and the like.

(3) The Contractor shall double-check to ensure that the inspection and maintenance has been carried out and if the Contractor has any doubt over the adequacy of such inspection or maintenance or if complete records are not made available, the Contractor shall not allow this Contractor's Equipment to be used upon the Works. The Contractor shall inspect and carry out full maintenance and repair on such equipment in compliance with the requirements of this Chapter before it is certified for use by the HSO and used upon the Works.

(4) Operators from hire/lease companies are by definition Contractor's Personnel and they shall be treated as if they are employed by the Contractor, in terms of compliance with JSSS.

(5) Operators shall be tested and certified by the HSO, shall receive safety training and shall perform all inspection, maintenance and other requirements fully in compliance with JSSS, in the same way as the Contractor's own employees.

4.7 TEMPORARY FUELLING FACILITIES

4.7.1 Requirements Generally

(1) When the Contractor uses temporary fuel storage and dispensing facilities at the Site for the use of Contractor's Equipment, the Contractor shall design and construct them so that they are substantial and secure and capable of storing and dispensing fuel in a safe and environmentally acceptable manner all to the approval of the Engineer.

(2) The facility shall include storage tanks, suitable foundations, support or containment structures, protective bund walls as necessary, paved surfaces, screens, fencing and associated facilities for storage of separate fuels and lubricants and for offices, access and the like all of which shall be suitable and fit for the purpose for which they are intended.

(3) Unless otherwise specified in the Contract, all such tanks, foundations, support and containment structures, paved surfaces, fencing, screens and associated facilities shall be demolished, removed and disposed of in a safe and environmentally acceptable manner

by the Contractor on or before completion and taking-over of the Works. All areas shall be backfilled, restored to a safe and suitable condition, cleaned and landscaped.

(4) The Contractor must ensure that the temporary fuel storage and dispensing facility is operated and occupied at all time only by authorised personnel and that all unauthorised personnel are prohibited from entering such areas at all times. The Contractor shall be particularly careful and provide measures to prevent any unauthorised access, tampering, damage and theft at any time.

(5) All storage tanks shall be bunded either as jacketed tanks or by providing bunded enclosures, such that in the event of a catastrophic failure, the tank contents will be safely contained and shall not be allowed to run freely or enter the surface or ground water systems.

(6) The Contractor is reminded of the requirements of JSSS 2.8 [*Fire Prevention*] and will be required to provide a comprehensive and a high standard of fire protection in fuel storage areas.

コメントの追加 **[SS109]:** 16. (50)

コメントの追加 **[SS110]:** No. 50
JICA inquired as same as No. 48.
Please reply to this inquiry.

コメントの追加 **[MJD111R110]:** Thank you and yes, it should be the same as the previous item, "on or before"

コメントの追加 **[SS112R110]:** Please replace with "on or before".

CHAPTER 5: HOISTING AND RIGGING

5.1 GENERAL REQUIREMENTS

5.1.1 Scope

(1) This Chapter specifies the safety requirements for Hoisting and Rigging Works which shall include:

(a) Hoisting Operations;

(b) Hoisting Equipment; and

(c) Rigging Equipment.

And hereinafter collectively referred to as "Hoisting and Rigging".

(2) General requirements for Contractor's Equipment for Hoisting and Rigging (including cranes) are included in JSSS 4 [*Contractor's Equipment*].

Additional particular requirements are contained in this Chapter.

5.1.2 Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Chapter or relevant to the subject of this Chapter and which are not fully covered by JSSS, the Contractor shall comply with the following standards:

(1) OSHA 1926.251 [Rigging equipment for material handling];

(2) OSHA Subpart R [Steel Erection];

(Note: Whilst this standard is related to Steel Erection, JSSS requires that this standard be applied to Hoisting Operations and associated rigging requirements in construction works generally)

(3) OSHA 1926.1413 [Wire rope – inspection]; and

(4) OSHA 1926.1414 [Wire rope - selection and installation criteria].

5.2 HOISTING OPERATIONS

5.2.1 Instruction for Contractor's Personnel

Further to the requirements of JSSS 1.7 [*Contractor's Safety Plans*], JSSS 1.9 [*Contractor's Method Statements*] and JSSS 1.15 [*Contractor's Safety Management Activities*], the Contractor shall include details of the following in the Method Statement and Safety Plan for Hoisting Operations and shall fully inform all Contractor's Personnel associated with such Hoisting Operations of these requirements before the commencement of any such operations, including:

(1) Scope, Area and Risk of the Hoisting Operation

(a) The scope of the required Hoisting Operation, the Rated Capacity, nature of Goods to be hoisted, location, required methods and safety arrangements;

(b) The Hoisting Operation boundary;

(c) Requirements on the ground conditions for installation, appropriate installation method taking account of all Hoisting Operation requirements, site and working conditions, location of obstacles, etc.;

(d) The working environment of the nearby areas to which particular attention should be paid (e.g. storage of Dangerous Goods or Hazardous Substances, Hazardous Areas, Operational Areas, or Overhead Services);

(e) The preservation of safe access for Contractor's Equipment and persons to, within and around the Hoisting Operations working area; and

(f) The potential danger of Hoisting Operations to any persons that are on the Site, and who may be affected by such operations.

(2) Hoisting Operation and Rigging Requirements

(a) The type(s) of Hoisting Equipment to be used and the Rated Capacity;

(b) The type(s) of Rigging Equipment to be used and the Rated Capacity;

(c) Hazards associated with the Hoisting Operation;

(d) Role and responsibility of the operator and each Rigger;

(e) Weight of Goods being hoisted;

(f) The shapes and characteristics of Goods being hoisted;

(g) The presence of any obstructions or Overhead Services and consequent restrictions on the movement and operation of Hoisting Equipment;

(h) Connecting and disconnecting techniques;

(i) The communication and signalling requirements (equipment to be used and standard signals); and

(j) The procedures in case of emergency.

(3) Identification of Personnel

(a) The identity of operators, Riggers and any other workers associated with the Hoisting Operation;

(b) The name of the authorised operator for each unit of Hoisting Equipment; and

(c) The identity of and location(s) for Spotters.

5.2.2 Operators and Riggers Generally

(1) The Contractor shall place signs on each unit of Hoisting Equipment showing the name of each authorised operator and clearly prohibiting all unauthorised persons from using, handling, operating or sitting at the controls of that equipment unit.

(2) Further to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*], the Contractor shall ensure that operators and Riggers are appropriately qualified, skilled and experienced in operation of the Hoisting Equipment to which they are assigned and duly certified as such by the HSO.

(3) Operators and Riggers shall be fully aware of the following:

(a) Work procedures, possible risks and operation methods;

(b) The need to stop all work when any defect or abnormality is detected;

(c) Not to remove, interfere with or override any safety devices;

(d) The identity of and location(s) for Spotters and the communication and signalling requirements including equipment to be used and signals; and

(e) The procedures in case of emergency.

(4) In addition, operators shall:

(a) Safely and competently operate the Hoisting Equipment;

(b) Keep all safety devices including emergency alarm and stop devices activated;

(c) Keep their assigned unit clean and carry out regular inspections prescribed by the Contractor before start of operation;

(d) Inform the Contractor's maintenance personnel of any apparent defect or

maintenance requirements; and

(e) Not use such Hoisting Equipment until any required repair or maintenance is performed.

(5) The Contractor shall assign only Riggers for Hoisting Operations and shall prohibit other workers from any involvement.

(6) The names of all assigned Riggers shall be posted prominently in the working area of the Hoisting Operation.

5.2.3 Safety Training

The Contractor shall provide health and safety training in accordance with JSSS 1.19 [*Safety Training Generally*]. taking account of the characteristics of the Hoisting Operations, Hoisting Equipment and Rigging Equipment.

5.2.4 Inspection ~~of Hoisting Equipment and Rigging Equipment~~

コメントの追加 **[MJD113]:** To simplify and make headings consistent

(1) When the Hoisting Equipment is mobilised to the Site, the Contractor shall inspect the equipment complying with JSSS 4.2 [*Inspection, Maintenance and Repair*], to ensure that the equipment is free from defect and suitable for the planned Hoisting Operation.

(2) Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] and JSSS 4.2 [*Inspection, Maintenance and Repair*], the HSO shall ensure that all Hoisting Equipment and all Rigging Equipment is inspected and maintained when it is at the location of operation before the commencement of the first and of all subsequent Hoisting Operations.

Inspections shall include all items necessary to ensure the safe performance of the Hoisting Operations including the following examples and any further requirements due to the characteristics of the Hoisting Operation and the capability and condition of the Hoisting Equipment and Rigging Equipment including condition and performance of:

(a) Anti-two blocking devices (over-winding prevention devices) and over-load prevention devices;

(b) Other safety devices including brakes, clutches and controllers;

(c) Rails for trolley and runway;

(d) Hooks, sheaves, blocks, pulleys and the like;

(e) Cables, ropes and the like; and

(f) Rigging Equipment.

(3) Periodic inspection shall be made complying with JSSS 4.2 [*Inspection, Maintenance and Repair*] and include the following items:

(a) Condition of over-winding prevention devices, anti-two blocking devices (over-winding prevention devices), other safety devices, brakes, and clutches;

(b) Condition of wire ropes and hanging chains;

(c) Condition of the Hoisting Equipment;

(d) Condition of placement of winches; and

(e) Condition of electric wire, switchboard and controller.

(4) No Hoisting Equipment or Rigging Equipment shall be put into operation unless it has been inspected in accordance with the requirements of JSSS 4.2 [*Inspection, Maintenance and Repair*] and it is certified as safe to be used.

(5) The Contractor shall prepare standard checklists for the above regular and periodic inspections. The results of these inspections shall be recorded and kept in accordance

with JSSS 1.32 [*Health and Safety Records*].

5.2.5 General Safety Measures ~~for Hoisting Operations~~

コメントの追加 **[MJD114]:** To simplify and make headings consistent

The Contractor shall:

(1) Select Hoisting Equipment which has a Rated Capacity and function compatible with the work conditions and requirements, including loads, surface conditions, access, working area, radius and angle of boom, etc.

(2) Clearly display the Rated Capacity of the Hoisting Equipment so that all operators and Riggers are fully aware at all times.

(3) Select Rigging Equipment with a Rated Capacity suitable for the Hoisting Operation.

(4) Select Rigging Equipment compatible with the purpose, work conditions and requirements.

(5) Ensure that operators and Riggers confirm that the load on the Rigging Equipment is less than the Rated Capacity.

(6) Activate all safety devices of Hoisting Equipment throughout the entire operation time(s) of any Hoisting Operations.

(7) Prohibition of entry

(a) Designate all Hoisting Operations as “Dangerous Work”, enclose the entire working area which is subject to any risk by providing temporary fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry*]; and

(b) The Contractor shall take measures to keep any unauthorised personnel away from any area where there is any risk of injury arising from the Hoisting Operation, due to fall of hoisted Goods, tangling, snagging, rebound of broken ropes or cables, broken sheaves, droppage and the like.

(8) Signalling

(a) Signalling between operators, Riggers and any associated workers regarding the Hoisting and Rigging Operations, shall only be carried out by Riggers, (hereinafter referred to as signallers);

(b) Signallers shall be located in a safe place outside the immediate area where the Rigging and Hoisting Operations are taking place, but in a location where they can clearly see suspended loads and can also see the operator and also be seen by such personnel;

(c) When it is not possible for signallers to give direct visible signals to the operator, hand-held radios or other communication tool as approved by HSO must be provided and used; and

(d) In addition, Spotters shall be placed and used only to keep any unauthorised personnel away from the working area.

(9) During Hoisting Operations:

(a) Check if the hoisting points, hooks and the like are positioned above the centre of gravity of the load to be hoisted;

(b) At commencement of all Hoisting Operations, stop the hoist at 30 cm from hoisting level, to check stability and ensure that all is in order before proceeding;

(c) Ensure that there are no persons and objects within the turning area when the Hoisting Equipment turns;

(d) After hoisting loads up to the safe height, adjust the boom gently;

(e) Always pay attention to any movement of the boom and the condition of suspended loads; and

(f) When unloading or detaching loads, stop once before landing and check the condition of the landing place and the load and then continue to lower gently.

(10) Ensure that operators shall never leave their seat or leave the controls while Hoisting Operations are in progress.

(11) Defects with Hoisting Equipment during operation

(a) Ensure that if operators notice any defect or abnormality in the Hoisting Equipment during Hoisting Operations (such as abnormal noise, temperature, smell, etc.) the operator shall stop the Hoisting Operation immediately;

(b) Identify the cause of the defect or abnormality and make necessary repairs by using authorised and qualified specialist mechanics, electricians or representative technical engineers authorised by the Hoisting Equipment manufacturer; and

(c) Ensure that the repaired Hoisting Equipment shall not be put in operation unless certified by the HSO.

(12) Condition of Ropes, Slings and Chains

Ensure that untested, uncertified, broken, damaged, deformed or defective ropes, chains or slings shall not be used.

(13) Adverse Weather

Take the following measures in addition to JSSS 2.7 [*Adverse Weather Requirements*]:

(a) Hoisting Equipment is left in a safe condition when not in use and particularly if adverse climatic conditions can be anticipated;

(b) All anchors, outriggers and supports are secure and adequate to fix and support the Hoisting Equipment in position during any adverse climatic conditions;

(c) Booms and jibs shall be secured to prevent any instability or collapse; and

(d) Before resuming any Hoisting Operation after any adverse weather, inspect Hoisting Equipment using the daily and periodic checklists specified in JSSS 5.2.4 [*Inspection ~~of Hoisting Equipment and Rigging~~ ~~Equipment~~*].

(14) Use of Hoisting Equipment for Contractor's Personnel

As a general rule, Hoisting Equipment shall not be used for transporting or hoisting Contractor's Personnel.

In exceptional circumstances and if so approved by the HSO, use of Hoisting Equipment may be allowed when the following all measures are taken:

(a) Dedicated gondola for transporting or hoisting shall be provided;

(b) Prevention measures shall be taken to avoid turning and falling of gondola;

(c) The assumed load (i.e. 1.3 times of total weight of gondola and workers on board plus 500kgf (approx. 4.9kN) shall not exceed the Rated Capacity of the Hoisting Equipment;

(d) Wires and ropes of Hoisting Equipment shall have a safety factor of at least 10 against the assumed load;

(e) Wire ropes of Hoisting Equipment shall have a safety factor of at least 10 against the assumed load;

(f) Lowering the gondola shall be by powered system which prevents any free drop; and

コメントの追加 **[MJD115]:** Clause heading changed

コメントの追加 **[SS116]:** 17. (55)

コメントの追加 **[SS117]:**

No. 55
JICA requested two units as shown to make clear understanding.
NK agreed.

コメントの追加 **[MJD118R117]:** No comment will change

コメントの追加 **[SS119R117]:** Confirmed.

(g) Use of PFAS of any Contractor's Personnel in the gondola shall be ensured.

5.3 HOISTING EQUIPMENT - CRANES

5.3.1 Planning, Installation and Removal

Unless otherwise approved by the HSO, the Contractor shall employ an appropriately qualified, skilled and experienced crane specialist(s) that shall select the required type and capacity of crane, plan the Hoisting Operation including mobilising, assembly, erection, use, dismantling and removal of cranes. The Contractor's specialist shall:

(1) Investigate the location and position for installation, plan the appropriate installation method taking account of all Hoisting Operation requirements, site and working conditions, location of obstacles, etc.

(2) Investigate the working area and ensure the safety of the crane and any crane rails.

(3) Design and construct crane foundation, assemble and install the crane with proper structural design and in compliance with the manufacturer's written instructions.

(4) Conduct completion inspection, load test and stability test of the crane.

(5) Dismantle and remove and transport cranes in a planned and systematic manner in compliance with the manufacturer's written instructions.

5.3.2 Additional Requirements for Mobile cranes

(1) Position mobile cranes where there are no obstacles within the operation range.

(2) Where obstacles exist, plan the appropriate operation to avoid the obstacles and ensure that operators and signallers comply with this plan.

(3) Ensue that ground has sufficient and even bearing capacity to prevent the crane from subsiding and overturning. Where necessary or where there is any risk of damaging surface paving or underground services, provide temporary steel plates of suitable size, thickness and to support the crane and avoid any risk of overturning during operation.

(4) Provide steel plate load-spreader pads to support outriggers and prevent them from subsiding.

(5) Fully extend outriggers or extension type crawlers to the maximum position.

(6) When the outriggers or crawlers cannot be extended to the maximum position, adjust the Rated Capacity of the mobile cranes to suit lower capacity commensurate to the actual extension length of outriggers or crawlers.

(7) Ensure that the actual Rated Capacity of the mobile crane is clearly shown and also advised to operators and Riggers.

(8) Activate the over-load prevention device of mobile cranes and accurately input the operational conditions of booms and outriggers.

(9) Cease the Hoisting Operation from time to time and check upon the condition of the outriggers or crawlers, implement adequate remedial measures if there is any subsidence and prohibit continuation of the Hoisting Operation until the crane has been re-inspected and certified as safe by the HSO.

(10) After the Hoisting Operation:

(a) When the mobile crane is not driven, fix the hooks of crane at the safe position;

(b) When the mobile crane is driven, take the following measures before driving:

(i) Attach fixing pin on each part;

(ii) Apply the brake of the turning device and winch drum; and

(iii) Turn off all switches related with operation of cranes.

5.4 RIGGING EQUIPMENT

5.4.1 Hoisting and Rigging Equipment

(1) All items of Rigging Equipment shall be labelled to show all pertinent information, such as the name of the manufacturer, date of manufacture, Rated Capacity, date of the latest periodic inspection~~,~~ and its expiration date, etc.

(2) The Contractor shall obtain Rigging Equipment from reputable manufacturers approved by the HSO and shall not make or repair his own Rigging Equipment at the Site.

(3) Rigging Equipment shall only be used:

(a) When certified as safe for use by the HSO in accordance with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*];

(b) Within the Rated Capacity; and

(c) In compliance with the manufacturer's written instructions.

(4) Rigging Equipment shall be removed from service, tagged as such and destroyed or removed from the Site, where required by the standards noted in JSSS 5.1.2 [*Compliance Standards*] including (but not limited to) the following conditions:

(a) Wire ropes

(i) Where one-tenth or more of the element wires are broken or cut in any one (1) strand;

(ii) Where the reduction ratio of diameter due to use, exceeds 7% of the original nominal diameter at the date of manufacture;

(iii) With kink or deformation; and

(iv) With excessive wear, corrosion or defect.

(b) Chains

(i) Where elongation due to use exceeds 5% of the original nominal length at the date of manufacture;

(ii) Where the diameter of links has reduced by more than 10 % since the date of manufacture; and

(iii) With excessive wear, cracks, corrosion or defect.

(c) Hooks, shackles

(i) Signs of deformation; and

(ii) With excessive wear, cracks, corrosion or defect.

(d) Synthetic fibre ropes or slings

(i) Broken or cut strands; and

(ii) With excessive wear or defect.

5.4.2 Further Safety Requirements ~~for Rigging~~

コメントの追加 **[MJD120]:** To simplify and make headings consistent

The Contractor shall fully comply with the requirements of the standards noted in JSSS 5.1.2 [*Compliance Standards*] including taking the following measures to prevent the risk of injury:

(1) Attach colour-coded self-adhesive vinyl tape and labels for slings visibly indicating the month of inspection and whether suitable for use.

(2) Inspect all Rigging Equipment before start of work.

(3) Select and use suitable Rigging Equipment depending on the weight and shape of Goods.

(4) Apply appropriate set up, provide fittings and accessories including clips and friction pads during Hoisting Works to ensure that the hoisted load (including bundled loads) are secure and will not move or slip, for example, cable-laid slings referred to BS EN 13414-3 Steel wire rope slings – Safety, Part 3: Grommets and cable-laid slings.

(5) Hoist loads at or above the centre of gravity.

(6) Attach guide ropes to the hoisted loads to assist with positioning.

(7) Securely store and protect Rigging Equipment to maintain in good condition and to prevent damage from rain, dust or contamination.

CHAPTER 6: TEMPORARY WORKS

6.1 GENERAL REQUIREMENTS OF TEMPORARY WORKS

This Section 6.1 applies to all Temporary Works included in JSSS 6.

6.1.1 Design and Provision of Temporary Works ~~Generally~~

Unless otherwise specified in the Particular Safety Specification, the Contractor shall take all necessary measures for the study, design, management, provision, safe use and safe removal of all Temporary Works as necessary to safely and systematically execute the Permanent Works and in accordance with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*], JSSS 1.37 [*Design and Management of Temporary Works*] and the specified standards.

The Contractor shall comply with the requirements specified in the Contract for Temporary Works and:

(1) Provide Temporary Works which are fit for the purpose for which they are intended and fully in accordance with the JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

(2) Manage the design, use and removal of Temporary Works fully in accordance with JSSS 1.37 [*Design and Management of Temporary Works*].

(3) Maintain and repair all Temporary Works when in use to ensure the continued optimal and safe performance.

(4) Monitor all Temporary Works when in use and any affected Permanent Works, existing buildings, structures, ground or surfaces that may be affected by the Temporary Works through regular inspection and (where necessary and specified) with relevant instrumentation to ensure that the Temporary Works are performing safely, to the designed limits and intended purpose.

(5) Ensure that:

(a) Modification of Temporary Works is not allowed unless it is authorised by the HSO;

(b) Unauthorised use of Temporary Works by any persons is not allowed;

(c) The HSO shall inspect all Temporary Works upon completion of erection and certify and label them as safe for use before any use is allowed;

(d) The HSO shall regularly inspect Temporary Works and certify and label them appropriately to ensure the continuous safe use or, in the event that faults are discovered, certify them as "Not Safe for Use" and prevent access to the Temporary Works until repaired and re-inspected;

(e) The HSO shall inspect Temporary Works upon the completion of the required Permanent Works and before Temporary Works are dismantled, demolished and removed accompanied by the Contractor's Temporary Works staff specified in JSSS 1.37 [*Design and Management of Temporary Works*] as appropriate, and certify that the Permanent Works are completed and the Temporary Works can be safely removed; and

(f) The HSO shall inspect after removal of the Temporary Works to ensure that removal has been completed properly and that no part of the Temporary Works remains, that any rectification of the Permanent Works is completed and all is left in safe order and condition.

(6) Safety Plan for Temporary Works

The Contractor shall include details of all Temporary Works in the Safety Plan to be

コメントの追加 **[SS121]:** Heading is changed simply to be consistent with the abbreviated titles used in some other Chapters
We recommend that this process be extended to introduce further consistency and remove other unnecessary wording.

コメントの追加 **[MJD122R121]:** No problem will change when you advise to do so

コメントの追加 **[SS123R121]:** Yes, JICA confirmed to change them.

JICA requested to review and make same in Chapters 1 to 5, for example.
5.2.4 Inspection ~~of Hoisting Equipment and Rigging Equipment~~
5.2.5 General Safety Measures ~~for Hoisting Operations~~
5.4.2 Further Safety Requirements ~~for Rigging~~

コメントの追加 **[MJD124R121]:** Have changed throughout – refer to the updated content pages for all changes

submitted in accordance with JSSS 1.7 [*Contractor's Safety Plans*].

6.1.2 Method Statements

Refer to JSSS 1.9 [*Contractor's Method Statements*].

6.1.3 Monitoring ~~the Performance of Temporary Works~~

(1) The Contractor shall monitor the Temporary Works to demonstrate that they are performing safely, to the designed limits and for the intended purpose.

(2) For more details, refer to JSSS 2.1.7 [*Monitoring and Records*].

(3) Contract Compliance

Notwithstanding the requirements of JSSS 2.1.7 [*Monitoring and Records*], the Contractor is reminded of his overall responsibility under the Contract for the Temporary Works.

The Contractor shall satisfy himself that the monitoring criteria and requirements specified in JSSS 2.1.7 [*Monitoring and Records*], or in other respective Chapters of JSSS and/or in the Particular Safety Specification, are sufficient to comply with his obligations under the Contract and he shall take any additional measures necessary to ensure the adequacy, stability and safety of Temporary Works.

6.1.4 Compliance Standards

(1) By reference to JSSS 1.37 [*Design and Management of Temporary Works*] and unless otherwise specified in the Particular Safety Specification, the Contractor shall comply with Sections 1 and 2 of BS5975, Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework as management standard with respect to design, erection, use and dismantling of Temporary Works.

(2) In relation to Temporary Works, the Contractor shall, subject to JSSS 1.4.5 [*Specified Standards*] also comply with:

(a) Section 3: Falsework of BS5975, Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework; and

(b) Such standards that are referred to in particular parts of JSSS.

コメントの追加 **[MJD125]:** To simplify and make headings consistent

6.2 EARTHWORK SUPPORT

6.2.1 General

(1) Refer to JSSS Annex 1.1: [*Definitions and Abbreviations*] for the definition of Earthwork Support.

(2) The Contractor shall maintain the structural integrity of the Works and Other Properties that could be affected by the Excavation Works and shall provide and maintain whatever Earthwork Support is necessary to comply with this requirement and ensure the safety of all persons that are in, under or adjacent to any excavation and to avoid any damage.

(3) Earthwork Support shall include for example:

(a) Timberwork including sheeting, planking, strutting and support systems;

(b) Steel sheet piling including shoring, strutting and support systems;

(c) Specialised support systems such as diaphragm walling, steel pipe piling, contiguous piling, soldier piling and lagging, and the like;

(d) Ground improvement, slope stabilisation, injection, ground freezing and the like; and

(e) Ground Anchors.

(4) In the case of (a) and/or (b) following, the Earthwork Support may not be required if, in the opinion of the HSO, conditions of the excavation are sufficiently safe, stable and free from danger of movement or collapse, and if the HSO gives permission that no-Earthwork Support is required:

(a) Excavation in rock; and/or

(b) Excavation less than 1.5 m deep.

(5) For sloping or benched sides to excavations (in lieu of Earthwork Support), refer to JSSS 7.2.1 (3).

6.2.2 Planning and Design

The Contractor shall design all Earthwork Support so that it is fit for the purpose for which it is intended and take account of ground conditions and surrounding conditions including:

(1) The effects of ground water including liquefaction, boiling or piping, heave, displacement and the like.

(2) The effect of vibration from site operations including piling or ground improvement.

(3) The effect of adjacent road or rail traffic.

(4) The requirements for safe access and working space necessary to execute the Works.

6.2.3 Monitoring

Refer to JSSS 2.1.7 [*Monitoring and Records*] for general requirement of monitoring and records.

The Contractor shall prepare a Monitoring Plan covering visual and instrument monitoring based on Table 6.2.1 [*Example of Visual and Auditory Monitoring Items*] and Table 6.2.2 [*Example of Instrument Monitoring Items*]

The contents of the tables are reference only and the Contractor shall prepare a detailed Monitoring Plan and submit to the Engineer as a part of the Safety Plan or the Method Statement.

Table 6.2.1: Example of Visual and Auditory Monitoring Items

	Locations	Monitoring Items
1	Earthwork Support: Faces, sheeting and piling	Meander/horizontal displacement and vertical displacement along top. Crack, deflection and swelling. Water leakage, mud inflow. Opening of joints or gaps in Earthwork Support.
2	Earthwork Support: Piles, walings and struts	Deflection, deformation and abnormal sound of struts and walings and other members. Settlement, floatation and twist of piles. Vertical or horizontal displacement of walings, struts and other members. Opening of joints or breakage of cross members, or breakage and loosening of bolts.
3	Base of Excavation	Water spring and ground water flow. Sand boiling. Heaving of the base. Liquefaction.
4	Neighbouring or adjacent Ground, paving and roads	Cracks, collapse, subsidence of pavement or ground surfaces. Opening of joints in paving and kerbs.
5	Neighbouring or adjacent Buildings or Structures	Cracks, subsidence, deformation and tilting of structures.
6	Underground Utilities	Displacement or leakage of or damage to underground utilities.

Table 6.2.2: Example of Instrument Monitoring Items

	Locations	Monitoring Items
1	Earthwork Support: Faces, sheeting and piling	Displacement, stress of Earthwork Support. Earth pressure and water pressure acting on Earthwork Support.
2	Earthwork Support: Piles, walings and struts	Axial force of struts, other supports and ground anchors.
3	Base of Excavation	Displacement of base of excavation. Water pressure of ground water, rate of water inflow.

4	Neighbouring or adjacent ground, paving and roads	Displacement of neighbouring or adjacent ground. Ground water level.
5	Neighbouring or adjacent buildings or structures	Displacement; cracks, weakening, subsidence, deformation and tilting of structures.
6	Underground Utilities	Displacement or leakage of or damage to underground utilities.

6.2.4 General Safety and Construction Requirements

(1) Materials and equipment to be used for Earthwork Support shall be appropriate for the width and depth of the excavation and free from damage or defects that might impair their proper function.

(2) Workers shall not be allowed to enter any excavation until Earthwork Support is installed prior to the work commencing.

(3) Earthwork Support shall proceed progressively so that no excavated faces are left without support or at risk of weakening or collapse at any time.

(4) Excavation to a level greater than 60cm below the planned bottom level of support when the support itself is not yet installed shall not be allowed.

(5) If temporary removal of individual members of Earthwork Support is necessary, safety measures shall be taken to ensure the safety of workers, such as installing additional temporary struts to support the additional loads imposed on parts of the system.

(6) When removing Earthwork Support, the Contractor shall prohibit anyone other than the workers engaged in the removal work to enter the working area and vicinity.

(7) Backfilling and compaction of any excavation shall be performed in parallel with the removal of Earthwork Support.

6.2.5 Safety Measures for Shoring

(1) “Shoring” shall include walings, struts and like support.

(2) Shoring shall be securely installed and fixed to Earthwork Support to prevent detachment and any movement or failure.

(3) All members acting in compression (excluding diagonal struts) shall be butt-jointed, and timber shoring shall be jointed with two or more doubling plates.

(4) Connecting parts of shoring or diagonal shoring or intersections, shall be reinforced with backing plates and bolts (timber) and welding with reinforcing plates (steel).

(5) For earth retaining work with intermediate piles, fix struts on intermediate piles rigidly.

(6) When shoring is fixed to or relies on an existing structure or building, the Contractor shall ascertain that the structure or building is able to withstand the applied load.

(7) Gaps between earth retaining wall (steel sheet piles, H-shape steel piles and the like) and walings shall be filled with mortar, concrete, steel plates and suitable wedges.

(8) Connections between struts and walings shall be reinforced with ready-made stiffeners, stiffener plates, concrete/mortar filling, stiffener jacks, etc.

6.2.6 Safety Measures for Ground Anchor Works

(1) Anyone other than designated personnel shall not operate the boring machine.

(2) No one (except those essential to the post-tensioning operations) shall be permitted to be behind the tensioning jack during tensioning to prevent any injury through breaking of the anchor tendon during tensioning.

(3) The Contractor shall check any damage in the grout hoses and joints before commencing any grout injection.

6.2.7 Adjacent Goods, Excavated Spoil and the like

(1) When placing any Goods, excavated spoil and the like on the ground surface at the top and adjacent to any excavation, the Contractor shall take measures to prevent it from falling.

(2) The Contractor shall not place any Goods, excavated spoil, backfill material and the like where the weight exceeds the load considered in the design of the Earthwork Support.

6.3 COFFERDAMS

6.3.1 General

(1) Refer to JSSS Annex 1.1: [*Definitions and Abbreviations*] for the definition of Cofferdam.

(2) Cofferdams are generally constructed as earth dykes, caissons, steel sheet piling, double steel sheet piles, steel pipe piles and the like.

6.3.2 Planning and Design

The Contractor shall design Cofferdams so that they are fit for the purpose for which they are intended and take account of ground conditions and surrounding conditions including:

(1) The effect of vibration from site operations including piling or ground improvement.

(2) Access and working space necessary to execute the Works.

(3) River discharge, water levels, tide levels, wave height, free board, seismic load, external force and any other relevant water conditions.

(4) Waterborne traffic.

(5) Avoidance of any damage by piling operations and the protection of the structural integrity of existing river or canals, banks, dykes and the like.

(6) Reduction of river cross sectional area, increased flow rates and protection of the structural integrity of existing river or canal banks, dykes and the like.

(7) Effects of tides, wave action, flooding and the like, the consequent need for additional shoring and avoidance of loosening of shoring and joints.

(8) Provision of at least two safe evacuation routes from the working areas by means of ladders, stairs, etc. to evacuate in the case of any danger of collapse of or inundation in the Cofferdam.

(9) Provision of life-saving equipment including buoyancy jackets, lifebuoy, ropes and (where necessary) standby boats.

(10) Measures for avoiding water pollution from construction and dismantling of Cofferdams.

(11) Measures for safe dismantling and removal.

6.3.3 Monitoring

Refer to JSSS 2.1.7 [*Monitoring and Records*] for general requirement of monitoring and records.

The Contractor shall prepare a Monitoring Plan covering visual and instrument monitoring based on Table 6.3.1 [*Example of Visual and Auditory Monitoring Items*] and Table 6.3.2 [*Example of Instrument Monitoring Items*].

The contents of the tables are reference only and the Contractor shall prepare a detailed Monitoring Plan and submit to the Engineer as a part of the Safety Plan or the Method Statement.

Table 6.3.1: Example of Visual and Auditory Monitoring Items

	Locations	Monitoring Items
1	Cofferdam Generally	Water seepage. Ability and capacity of pumping arrangements to maintain safe working conditions. Meander/horizontal displacement and vertical displacement

		along top. Crack, deflection and swelling. Opening of joints.
2	Piles, walings, struts, shoring and other members	Deflection, deformation and abnormal sound of piles, walings, struts, shoring and other members. Opening of joints or breakage of piles, cross members, or breakage and loosening of bolts.
3	Base of Excavation	Water spring and ground water flow. Sand boiling. Heaving of the base.
4	Neighbouring Properties or Structures on or outside the Site	Cracks, subsidence, deformation and tilting of structures.

Table 6.3.2: Example of Instrument Monitoring Items

	Locations	**Monitoring Items**
1	Cofferdam Generally	Displacement, stress of Earthwork Support. Earth pressure and water pressure acting on Earthwork Support.
2	Shoring and struts	Axial force of strut, other supports and ground anchors.
3	Base of Excavation	Displacement of base of excavation. Water pressure of spring of water, water inflow.
4	Neighbouring Properties or Structures on or outside the Site	Displacement: cracks, weakening, subsidence, deformation and tilting of structures.
5	Underground Utilities	Displacement, damage or leakage of underground utilities.

6.3.4 General Safety and Construction Requirements

(1) For shoring works, refer to JSSS 6.2.5[*Safety Measures for Shoring*].

(2) The Contractor shall provide training to all Contractor's Personnel who are to work on the construction, maintenance and removal of the Cofferdam or within the Cofferdam, so that they are aware of all risks and countermeasures including water leakage, adverse weather, severe waves or adverse water conditions, so that they can work safely and when necessary, evacuate the working areas efficiently and safely.

(3) The Contractor shall display visible and clear warning notices of all hazards and advisory notices giving directions and information, including emergency contacts, safe escape routes, directions to and locations of life-saving equipment, assembly areas, evacuation

boats and the like.

(4) The Contractor shall implement measures to prevent collisions with waterborne traffic, including warning signs and lights during the night or in heavy rain mist or fog.

(5) The Contractor shall establish a system to confirm the safety of the Cofferdams, appoint a person-in-charge who shall be present at all times and shall be responsible for issuing an evacuation order if and when necessary.

(6) The Contractor shall evacuate Contractor's Personnel whenever there is any danger due to water leakage through Cofferdams or from the ground within the working area.

(7) Whenever any defect is identified in the Cofferdam, the Contractor shall implement repair and improvement measures to ensure the safety of Contractor's Personnel and prevent any personnel from re-entering the Cofferdam until it has been inspected by the HSO and certified by him to be safe for use.

6.3.5 Excessive and Sudden Rise in Water Level.

(1) The Contractor shall analyse any risk due to sudden rise of water level and excessive water level above the design basis for the highest water level and prepare for this as applicable in the Safety Plan.

(2) This shall include procedures for monitoring water levels as described below.

(a) Monitoring water levels with instruments and recording equipment at the Site and obtaining forecasting information of water levels;

(b) Communications among persons in charge of monitoring of water levels, persons responsible for the works in the Cofferdams, the HSO and workers in the Cofferdam;

(c) Instructions to Contractor's Personnel for evacuation;

(d) Stop work in accordance with JSSS 1.13 [*HSO – Scope of Duties and Authority*]; and

(e) Resume work when water level has subsided and after inspection and certification by the HSO that it is safe to do so.

6.3.6 ~~Monitoring~~ Water Level and Other Conditions

In addition to the requirements of JSSS 2.1.7 [*Monitoring and Records*], the Contractor shall monitor and keep records of all climatic, river, lake or marine conditions in the direct vicinity of any Cofferdam including for example, the water level at various times throughout the day, tidal data, speed and direction of waterflow, wave height, wind speed and direction.

The Contractor shall provide all instruments and facilities to obtain the data and submit reports to the Engineer on a daily basis and compile on weekly basis.

コメントの追加 **[MJD126]:** "Monitoring" is used already in 6.3.3

6.4 WALKWAYS

6.4.1 General

(1) This Section includes safety measures relating to the safe movement of persons to and around the Site with respect to walkways.

(2) Refer to JSSS 2.5.7 *[Preventing Falls from Walkways]* for interpretation of the word "walkways".

(3) ~~Ladders and stepladders (other than fixed ladders) shall not be used for walkways in principle. Staircases shall be provided in principle where persons are necessary to move up and down.~~ In principal, steps or staircases shall be provided for the vertical movement of all persons. Steep ramps shall be avoided and non-slip measures shall be adopted on all ramps. Ladders and stepladders may be used only if the HSO considers the risk of their use to be low.

(4) For temporary steps and staircase structures the requirements of JSSS 6.5 [*Scaffolding*] shall apply.

(5) For Fall prevention from walkways, ladders and stepladders the requirements of JSSS 2.5 [*Fall Prevention*] shall apply.

(6) Details of the following shall be included in the Safety Plan required by JSSS 1.7 [*Contractor's Safety Plans*] and JSSS 6.1.1 (6) [*Safety Plan for Temporary Works*]:

(a) Locations and available periods of walkways to be provided;

(b) Drawings of walkway structures, indicating structure type, materials and main dimensions for bridge type walkways where the height and length is 10m or more;

(c) Types of temporary walls, barriers or other separation between walkways and working areas, roads or footpaths on or around the Site; and

(d) Locations of emergency exits and evacuation routes.

(7) The Contractor shall:

(a) Provide designated walkways to, in and around the various workplaces at the Site to ensure the safe and secure movement of all persons at all times;

(b) Provide and maintain clear signage so that all users are aware of the locations and routes;

(c) Provide and maintain adequate lighting;

(d) Ensure that walkways have sufficient dimensions and load-bearing capability for the intended purpose;

(e) Ensure that there are no obstacles in walkways and that surfaces are level and safe, maintain all in a clean and orderly condition to avoid any falls, slips and injury;

(f) Ensure that walkways do not exceed a gradient of 30 degrees. Steeper gradients shall be provided with steps or staircases or ladders where appropriate; and

(g) Ensure that ramps, steps and staircases have slip resistant surfaces and that they are provided with handrails and toe boards in accordance with JSSS 2.5.5 [*Handrails*] and JSSS 2.5.6 [*Toeboards*].

6.4.2 Emergency Exits and Safe Evacuation Routes

The Contractor shall provide clear and illuminated signage so that all persons are made aware of the locations of emergency exits and safe evacuation routes and maintain all such locations and routes in a clean, safe and readily available condition.

コメントの追加 [MJD127]: (Refer to earlier query)

No need to mention ladders or stepladders in title?

コメントの追加 [SS128R127]: Yes, 6.4 specifies to safe movement.
We leave WALKWAYS as it is.

コメントの追加 [SS129]: JICA requested to stipulate this sentence in Japanese. NK prepared this in English, so please edit this English.

JICA sentence is "上下の移動が必要な場所には原則として階段を設ける".

コメントの追加 [MJD130R129]: It is better as:
In principal, steps or staircases shall be provided for vertical movement by all persons.
Please advise

コメントの追加 [SS131R129]: Yes, I agreed to replace with your sentence. May I know "vertical movement" include "steep slope". Can you add some word such as movement of vertical or steep places"?

6.4.3 Vertical Access

The Contractor shall provide steps, stairs and ramps as means of providing safe access or egress from excavations or different working levels.

Steps, stairs and ramps shall be constructed as follows:

(1) With Scaffolding in accordance with JSSS 6.5 [*Scaffolding]*, provided with handrails and non-slip treads.

(2) With purpose made timber or metal ramps comprising plywood boarding and structural timber framing.

6.4.4 Ladders and Stepladders

For the purposes of interpretation and unless otherwise stated in JSSS the word “ladders” shall be deemed to mean portable ladders, namely those that can be easily moved or carried even if temporarily restrained and that are not an integral part of a building, structure or equipment.

~~Fixed ladders meaning those that are permanently attached to a building, structure, or equipment shall be the subject of separate design by the Contractor if for use in Temporary Works or by the Employer if for use in Permanent Works.~~

~~Fixed ladders whether for use in Temporary Works or Permanent Works shall be provided with fall protection for lengths of 7.32 metres and above in accordance with ANSI standard A14. 2-1990.~~

The Contractor shall comply with the following requirements regarding the use of ladders and stepladders:

(1) Ladders shall:

(a) Be of sound structure, clean and not contaminated by any slippery material;

(b) Be without visible signs of defect, damage, corrosion, and shall otherwise in safe condition;

(c) Be at least 30 cm wide;

(d) Have steps with an interval of 25cm to 35cm and evenly spaced; and

(e) Have slip-proof steps or have other measures to prevent slipping.

(2) Stepladders shall

(a) Be of sound structure, clean and not contaminated by any slippery material;

(b) Be without visible signs of defect, damage, corrosion, and shall otherwise in safe condition;

(c) Have an angle between the front rail and the floor not exceeding 75 degrees and for folding stepladders they shall be equipped with a lock (such as a spreader with lock) to secure the angle made by the front rail and the floor;

(d) Steps shall be non-slip and of sufficient size to ensure safe operation; and

(e) Rails shall have non-slip feet or shoes.

(3) Use of ladders and stepladders

The Contractor shall ensure with respect to use of both ladders and stepladders that:

(a) Users shall read and follow all labels/markings on ladders or stepladders, be aware of and never exceed the maximum load rating of the ladder or stepladder and of the weight it is supporting, including the weight of any tools or equipment;

(b) Users shall avoid electrical hazards, always look for overhead power lines before handling ladders or stepladders. Avoid using metal ladders or stepladders near

コメントの追加 [SS132]: 18. (60)

コメントの追加 [SS133]: No. 60
JICA commented to delete theses two sentences with the following reasons:

（理由）
➢fixed ladder
は鋼製で構造物に堅固に設置された垂直方向の移動に用いられるものを想定していると考えられるが、OSHA等の記述をみると安全対策として多岐にわたる記述があり、ご提案の記載ではあまりに不十分（また、7.32mを超えるladderはANSI A14.2-1990に従うという根拠は見出せません。（ANSI自体が2017年に見直されA14.2～14.5に変わっています））。
➢従って今般作成のJSSSではfix ladderについては扱わない整理とする。
➢すると6.4.4冒頭に追記されたthe word “ladders” shall be deemed to mean portable ladders,という表現とも整合する。
➢6.4.1 (3)については、「梯子は原則として使わない」ではなく、「原則として階段を使う」ことが記述されるべき。その上で、二つ目の文（安全性が確保されるとHSOが認められた場合に限ってはしごを使ってよいという記述）につなげる。
➢かかる原則論を記述することを前提に、2.5.7 (1)に「階段」を加える。

コメントの追加 [MJD134R133]: No comment will change.

コメントの追加 [SS135R133]: Confirmed.

power lines or exposed energised electrical equipment;

(c) Ladders or stepladders shall be inspected prior to use. If a ladder or stepladder is damaged, it shall be removed from service and suitably tagged until repaired or discarded; ~~and~~

(d) Ladders or stepladders shall only be placed on a stable, firm and sufficiently strong base giving level and safe support and so that the rungs or steps remain horizontal, as well as any loading placed on it; and

(e) The top rung of a ladder or top step of a stepladder shall not be used as a rung/step unless designed for that purpose.

(4) Additional Requirements for Use of ladders

The Contractor shall ensure with respect to use of ladders:

(a) Ladders shall maintain an angle between foot and floor of L (horizontal length): H (height) = 1: 4 (75.5 degrees);

(b) Ladders shall have the top projecting at least 1 m over the landing floor;

(c) Ladders shall not be placed on boxes, or other unstable bases to obtain additional height and connected ladders to give greater height or reach shall not be allowed;

(d) Suspended ladders shall be anchored in a secure manner so that they cannot be displaced or swing;

(e) Ladders shall be secured before any use and prevented from slipping during use by:

(i) Securing the side rails at or near the top and the bottom; and

(ii) Providing an effective anti-slip shoe or foot~~; and~~

~~(iii) Having another worker support the lower part of the ladder~~;

(f) No extendable ladder shall be used where its sections cannot be locked and which could therefore move while in use; and

(g) Where a ladder or a series of ladders rise for a vertical height of 9 m or more above the base level, safe landing areas or rest platforms shall be provided at suitable intervals wherever possible.

(5) Additional Requirements for Use of Stepladders

The Contractor shall ensure with respect to use of stepladders:

(a) Stepladders shall not be used for work at heights of 2m or more. The Contractor shall adopt other measures for work in excess of 2m such as or providing Scaffolding in accordance with JSSS 6.5 [*Scaffolding*];

(b) ~~Step ladders~~ Stepladders shall not be used as a single ladder or in a partially closed position;

(c) Treads of stepladders shall have the correct sized area and slip resistant finish for safe working;

(d) Restraint Clasps shall be securely locked before any use;

(e) Stepladders shall not be placed on unstable or uneven surfaces;

(f) Stepladders shall not be positioned in front of doors;

~~(g) The top rung of a ladder or step of a step ladder stepladder shall not be used as a rung/step unless designed for that purpose;~~

(h) For use of Stepladders as a support for trestle Scaffolds refer to JSSS 6.5

コメントの追加 [SS136]: Moved from 6.4.4(5)(g) with some modification.

コメントの追加 [MJD137R136]: No comment will change

コメントの追加 [SS138R136]: Confirmed.

コメントの追加 [SS139]: JICA commented There is no such provision of (iii) and when fixed both top and foot, no need support by other worker.

コメントの追加 [MJD140R139]: No comment will change

コメントの追加 [SS141R139]: Confirmed.

コメントの追加 [SS142]: Typo:

コメントの追加 [MJD143R142]: Thank you, will change, interestingly OSH uses both

コメントの追加 [SS144R142]: JICA requested the above. Confirmed.

コメントの追加 [SS145]: JICA commented to move this to 6.4.4 (3) because this stipulate for both ladder and stepladder.
NK agreed.

コメントの追加 [MJD146R145]: No comment will change

コメントの追加 [SS147R145]: Confirmed.

[*Scaffolding*]; and

(i) The user can maintain a safe handhold when carrying a load unless this is otherwise justified by the height of the task, nature of work and the like.

6.4.5 Inspection

In accordance with JSSS 1.13 [*HSO - Scope of Duties and Authority*] the HSO shall regularly inspect all walkways, ladders and ~~step ladders~~ stepladders, ensure that same are safe and fit for the intended purpose and visibly certify each as safe for use or otherwise.

6.5 SCAFFOLDING

6.5.1 General

(1) This Section contains requirements for various types of Scaffolding including supported scaffolds (for example tube and coupler scaffolds and fabricated frame scaffolds), mobile scaffolds, suspended scaffolds, trestle scaffolds and mobile elevating work platforms.

(2) Not all types of Scaffolding are separately described in this Section and the requirements of this Section are therefore of general application. Requirements for any one (1) type of Scaffolding shall also apply generally to all types and configurations unless otherwise stated or apparent from the wording and context.

(3) All Scaffolding shall be designed, erected, tested, inspected, used, dismantled and removed by Contractor's Personnel that have been trained and certified for such operations in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*].

(4) All Scaffolding, shall be carried out in compliance with the manufacturer's written instructions or the design of the Contractor.

(5) The design, management, provision, safe use and safe removal of Scaffolding shall comply with the requirements of JSSS 6.1.1 [*Design and Provision of Temporary Works ~~Generally~~*].

コメントの追加 **[MJD148]:** Heading changed

(6) Unless specified elsewhere in JSSS or in any of the compliance standards, all Scaffolding and Scaffold components shall be capable of supporting, without failure, its own weight and at least 4 times the maximum intended load applied or transmitted to it.

(7) Scaffolds and Scaffold components shall not be loaded in excess of their maximum intended loads or rated capacities, whichever is less.

(8) Scaffolding shall not be used for any purpose other than the intended original purpose and for example shall never be used for hoisting loads. The Contractor shall provide other specific types of Contractor's Equipment (such as material hoists) for that purpose.

(9) Scaffolding shall be removed immediately upon completion of the work for which it is provided.

6.5.2 Compliance Standards

(1) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall comply with any one (1) of the following standards:

(a) OSHA 1926 Subpart L [Scaffolds];

(b) ANSI/ASSP A10.8 – 2019 Scaffolding Safety Requirements equipment - Part 1: Scaffolds [Performance requirements and general design]; and

(c) BS EN12811-1:2003 Temporary works equipment - Part 1: Scaffolds [Performance requirements and general design]

6.5.3 Notices to be Displayed ~~on Scaffolds~~

(1) Following inspections by HSO, suitable signage shall be applied to Scaffolds clearly indicating for example:

(a) "Scaffold Complete and Safe For Use";

(b) "Scaffold Not Complete - Do Not Use"; and

(c) "Scaffold Not Safe For Use".

(2) When any Scaffold is to be used for loading of Goods, the Contractor shall display a notice indicating the maximum load capacity of each Scaffold.

(3) Scaffolds shall also be tagged with the names of the erector and the person responsible for inspection and maintenance of the Scaffold.

(4) All notices shall be clearly visible and in easy-to-see locations.

6.5.4 ~~Scaffolding~~ Assembly, Erection, Alteration and Dismantling ~~Generally~~

コメントの追加 **[MJD149]:** To simplify and make headings consistent

The Contractor shall take the following measures when assembling or erecting, altering or dismantling all types of Scaffolding:

(1) Scaffolding shall be assembled or erected, altered and dismantled only by competent personnel and the work should always be carried out under the direction of a competent Superintendent.

(2) Working areas where Scaffolding is being assembled or erected, altered and dismantled shall be enclosed with temporary fences or barriers. The Contractor shall prevent entry of any non-authorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry*].

(3) During erection of Scaffolding 2m high and above, boarded areas shall be provided for safe temporary storage of Scaffolding tubes, couplings, fittings or components and other materials and equipment.

(4) All workers engaged in the assembly or erection, alteration and dismantling of any Scaffolding shall be provide with PFAS and ensure that such workers use this.

(5) Scaffold boards shall each be securely fixed at a sufficient number of points to provide constant support with no movement or dislocation and no gaps that may create a dropping hazard.

(6) When moving Scaffold boards, ensure that they are securely supported in at least three (3) locations, the length of any projection from supports shall be at least 10cm and not exceeding one-eighteenth of the length of the Scaffold boards.

(7) When stacking the timber sole plate or runners ensure that they are stacked in the longitudinal direction, over supports and with 20 cm overlaps.

6.5.5 Inspection and Maintenance ~~of Scaffolding~~

Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the Contractor shall comply with the following:

(1) Every Scaffold from which a person could fall 2m or more shall be thoroughly examined by the HSO (or his delegated assistant):

(a) Before it is brought into use;

(b) After any substantial alteration or extension;

(c) At least once in every 7 days; and

(d) Whenever it has been exposed to adverse climatic conditions, earthquake or other factors which may have affected its safety.

(2) A written record of the examination and regular inspections with details of any repair measures shall be prepared and kept by the HSO.

(3) The examinations and regular inspections shall include:

(a) Check that the Scaffold is provided and used in accordance with the Method Statement, Safety Plan and its design;

(b) Condition of Working Platforms and of any damage to fixings;

(c) Condition and any loosening at the fastening, connecting and mounting, portions of standards, ledgers, brackets, and the like;

(d) Condition and any damage and corrosion of couplings, fittings, clamps and accessories;

(e) Condition and any damage and corrosion of fall prevention facilities and that they are intact and secure;

(f) Condition of mountings and presence of toe boards;

(g) Condition of bases, screw jacks, castors, brakes, sole plates and the like and ensure there is no movement or settlement;

(h) Condition of mountings and presence of diagonal bracings, stays, anchors, ties and other bracing, support or reinforcement materials; and

(i) Condition of mountings and presence of posts, standards, ledgers and transoms.

(4) The Contractor shall carry out all necessary remedial and repair work necessary to rectify any deterioration, defect or damage and shall, if necessary, stop the use of the Scaffolding until such work has been properly completed, re-inspected and re-certified as safe for use by the HSO.

6.5.6 Scaffold Platforms

Scaffold platforms shall comply with the following:

(1) Each platform on all working levels of Scaffolding shall be fully planked or decked between the front uprights and the handrail supports as follows:

(a) Platforms shall be of adequate size and strength and with true dimension and no twist or bending, no splits, holes or damage;

(b) Each platform unit shall be installed so that the space between adjacent units and the space between the platform and the uprights is no more than 2.5 cm wide, except where the Contractor can demonstrate that a wider space is necessary;

(c) Where the Contractor makes the demonstration provided for in paragraph (b) above, the platform shall be planked or decked as fully as possible and the remaining open space between the platform and the uprights shall not exceed 24 cm.; and

(d) The requirement to provide full planking or decking does not apply to platforms used solely as walkways or solely by the workers performing Scaffold erection or dismantling. In these situations, only the planking that the Contractor establishes is necessary to provide safe working conditions is required.

(2) Except as may be provided separately for individual types of Scaffold, Scaffold platforms and walkways shall be at least 45 cm wide.

Where it is not practicable to provide 45 cm width, the Contractor shall secure a width as wide as feasible for the work, and the workers on those platforms and walkways shall be protected from fall hazards by the use of handrails and/or personal fall arrest systems.

(3) Except as provided separately for individual types of Scaffold, the front edge of all platforms shall not be more than 36 cm from the face of the work, unless handrails are erected along the front edge and/or personal fall arrest systems are used to protect the workers from falling.

(4) Further requirements to those specified above, shall comply with OSHA 1926.451 [General requirements, (b) Scaffold platform construction].

6.5.7 Supported Scaffolds

(1) General

(a) Scaffolds with a height to base width (including outrigger supports, if used) ratio

of more than four to one (4:1) shall be restrained from tipping by guying, tying, bracing, or equivalent means;

(b) Poles, legs, posts, frames, and uprights shall bear on base plates and mud sills or other adequate firm foundation;

(c) Footings shall be level, sound, rigid, and capable of supporting the loaded Scaffolding without settling or displacement;

(d) Poles, legs, posts, frames, and uprights shall be plumb and braced to prevent swaying and displacement;

(e) When moving platforms to the next level, the existing platform shall be left undisturbed until the new bearers or end frames have been set in place and braced prior to receiving the new platforms; and

(f) Further requirements to those specified above, shall comply with OSHA 1926.451 [General requirements, (c) Criteria for supported scaffolds].

(2) Tube and Coupler Scaffolds

(a) Transverse bracing forming an "X" across the width of the Scaffold shall be installed at the Scaffold ends and at least at every third set of posts horizontally (measured from only one end) and every fourth runner vertically;

(b) On straight run Scaffolds, longitudinal bracing across the inner and outer rows of posts shall be installed diagonally in both directions, and shall extend from the base of the end posts upward to the top of the Scaffold at approximately a 45-degree angle;

(c) Where conditions preclude the attachment of bracing to posts, bracing shall be attached to the runners as close to the post as possible;

(d) Bearers shall be installed transversely between posts, and when coupled to the posts, shall have the inboard coupler bear directly on the runner coupler. When the bearers are coupled to the runners, the couplers shall be as close to the posts as possible;

(e) Runners shall be installed along the length of the Scaffold, located on both the inside and outside posts at level;

(f) Couplers shall be of a structural metal, such as drop-forged steel, malleable iron, or structural grade aluminium, the use of grey cast iron is prohibited; and

(g) Further requirements to those specified above, shall comply with OSHA 1926.452 [Additional requirements applicable to specific types of scaffolds, (b) Tube and coupler scaffolds].

(3) Fabricated Frame Scaffolds

(a) Frames and panels shall be braced by cross, horizontal, or diagonal braces, or combination thereof, which secure vertical members together laterally. The cross braces shall be of such length as will automatically square and align vertical members so that the erected Scaffold is always plumb, level, and square. All brace connections shall be secured;

(b) Frames and panels shall be joined together vertically by coupling or stacking pins or equivalent means;

(c) Where uplift can occur, which would displace Scaffold end frames or panels, the frames or panels shall be locked together vertically by pins or equivalent means;

(d) Brackets used to support cantilevered loads shall:

(i) Be seated with side-brackets parallel to the frames and end-brackets at 90

degrees to the frames;

(ii) Not be bent or twisted from these positions; and

(iii) Be used only to support personnel, unless the Scaffold has been designed for other loads.

(e) Further requirements to those specified above, shall comply with OSHA 1926.452 [Additional requirements applicable to specific types of scaffolds, (c) Fabricated frame scaffolds].

6.5.8 Suspended Scaffolds

(1) General

(a) Suspended Scaffolds comprise Working Platforms suspended from upper levels for example with ropes, cables or chains and all necessary support framing, with or without Hoisting Equipment.

(b) Further requirements to those specified above for suspended Scaffolds, shall comply with:

(i) OSHA-1926.451 [General requirements]; and

(ii) OSHA 1926.452 [Additional requirements applicable to specific types of scaffolds].

(2) The following safety measures shall apply to interior hung Scaffolds which are suspended from roof structures, ceiling beams or other structural members:

(a) Capacity: of interior hung Scaffolds:

(i) Each Scaffold and Scaffold component except as provided in (ii) below shall be capable of supporting, without failure, its own weight and at least 4 times the maximum intended load applied or transmitted to it; and

(ii) Each suspension rope, including connecting hardware, used on non-adjustable suspension Scaffolds shall be capable of supporting, without failure, at least 6 times the maximum intended load applied or transmitted to that rope.

(b) Construction: of interior hung Scaffolds:

(i) Overhead supporting members (roof structure, ceiling beams, or other structural members) shall be inspected and checked for strength before the Scaffold is erected; and

(ii) Suspension ropes and cables shall be connected to the overhead supporting members by shackles, clips, thimbles, or other means that meet equivalent criteria (e.g., strength, durability).

(c) Inspection:

(i) Scaffolds shall be inspected before every work shift, and if any abnormality is found, the work shall be stopped; repairs made and the Scaffold re-inspected in accordance with JSSS 6.5.5 (4); and

(ii) Wire ropes, chains, hooks and shackles used in the Scaffolds shall be inspected before every work shift in accordance with JSSS 5.4.1 [*Hoisting and Rigging Equipment*] If any abnormality is found, they shall be replaced.

(d) Prohibited activity

The use of any ladders or stepladders on suspended Scaffolds shall be prohibited.

6.5.9 Mobile Scaffolds

(1) Mobile Scaffolds shall be braced by cross, horizontal, or diagonal braces, or combination thereof, to prevent distortion or collapse of the Scaffold and to secure vertical members together laterally so as to automatically square and align the vertical members. Scaffolds shall be plumb, level, and squared. All brace connections shall be secured.

(2) Scaffold casters and wheels shall be locked with positive wheel and/or wheel and swivel locks, or equivalent means, to prevent movement of the Scaffold while the Scaffold is used in a stationary manner.

(3) Manual force used to move the Scaffold shall be applied as close to the base as practicable, but not more than 1.5 m above the supporting surface.

(4) Power systems used to propel mobile Scaffolds shall be designed for such use. Forklifts, trucks, similar motor vehicles or add-on motors shall not be used to propel Scaffolds unless the Scaffold is designed for such propulsion systems.

(5) Platforms shall not extend outward beyond the base supports of the Scaffold unless outrigger frames or equivalent devices are used to ensure stability.

(6) Where levelling of the Scaffold is necessary, screw jacks or equivalent means shall be used.

(7) Caster stems and wheel stems shall be pinned or otherwise secured in Scaffold legs or adjustment screws.

(8) Safety measures shall be applied before relocating the Scaffolds:

(a) Check the floor surface in advance to prevent the Scaffold from overturning due to any irregularities or obstructions;

(b) Move the Scaffold only after releasing brakes on all castors;

(c) Do not move the Scaffold when any workers or Goods are on the Scaffold;

(d) Ensure that there are no obstructions in the route including any overhead obstructions; and

(e) Do not allow any persons other than workers engaged in the relocation to enter the moving areas of the Scaffold or in the vicinity.

(9) Prohibited activity

Use of the Mobile Scaffolds shall be prohibited for the following:

(a) Use as a support for lifting dropping Goods, debris or waste materials or for dropping same;

(b) Use for the purpose of providing a barrier by covering with sheet material with the risk of collapse due to exposure to wind;

(c) Use for work of grit blasting or water jetting, where the reaction force can destabilise the Scaffold or workers on the Scaffold; and

(d) Use as floor to support mobile ladders, stepladders, trestles.

(10) Further requirements to those specified above shall comply with OSHA 1926.452 [Additional requirements applicable to specific types of scaffolds, (w) Mobile scaffolds].

6.5.10 Trestle Scaffolds

(1) Trestle Scaffolds can comprise:

(a) Special proprietary type free-standing trestle platforms; or

(b) Scaffold boards or lightweight staging boards supported on stepladders or other tripod type ladders.

(2) For requirements on Stepladders refer to JSSS 6.4.4 [*Ladders and Stepladders*].

(3) The following safety measures shall apply:

(a) The distance between the centre lines of the supporting stepladders shall not exceed 1.8m, width of the Scaffold boards shall be at least 45 cm;

(b) Scaffold boards shall not be placed any higher than the second highest rung or step of the ladder supporting the platform;

(c) If timber Scaffold boards are used, the overlap between boards shall be at least 20cm; and

(d) The length of projection of the platform from the end support shall be at least 10cm and not more than one-eighteenth of the length of the boards.

6.5.11 Mobile Elevating Work Platforms

This Clause specifies requirements for mobile elevating work platforms (also known as aerial lifts) including extendable boom platforms, articulating boom platforms, vertical towers and a combination of any such devices.

(1) The following safety measures shall apply for placing and operating mobile elevating work platforms:

(a) Only trained Contractor's Personnel, certified as such by the HSO shall be permitted to operate in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*];

(b) All operation shall be carried out in accordance with the manufacturer's written instructions;

(c) Mobile elevating work platforms shall never be used beyond the load limit recommended by the manufacturer, which shall also be clearly displayed on the equipment; and

(d) Safety devices shall not be switched off or isolated.

(2) Measures before operation of mobile elevating work platform:

(a) Designate operation as "Dangerous Work" and in accordance with JSSS 2.3 [*Prohibition of Entry*] demarcate working areas and take measures to prevent entry to unauthorised personnel;

(b) Place a Spotter, in accordance with JSSS 2.4 [*Spotters*] to guide the mobile elevating work platform and, in case of emergency to properly address the situation (e.g. to call help when the operator is incapacitated);

(c) Determine signals in accordance with JSSS 2.4.5 [*Signals*], and

(d) Determine in advance the appropriate working speed limit for the mobile elevating work platform according to the height of the Working Platform and the length of the boom, etc. and ensure that the operator never drives the equipment in excess of this limit.

(3) Measures at locating mobile elevating work platform:

(a) The parking brakes of vehicle shall be set;

(b) Wheel chocks shall be installed before using the mobile elevating work platforms on an incline, provided they can be safely installed;

(c) When outriggers are used, they shall be positioned on pads or a solid surface; and

(d) Lift controls shall be tested each day prior to use to determine that such controls are in safe working condition.

(4) Measures at operation on mobile elevating work platform:

(a) Workers shall always stand firmly on the floor of the basket/Working Platform, and shall not sit or climb on the edge of the basket or use planks, ladders, or other devices for a work position;

(b) Workers shall use PPE including PFRS;

(c) Workers shall be prohibited from taking dangerous actions such as moving from the working basket/Working Platform to neighbouring structure, standing on and working from handrail;

(d) When the mobile elevating work platform has both platform (upper) and lower controls, the upper controls shall be in or beside the platform within easy reach of the operator. Lower controls shall provide for overriding the upper controls. Controls shall be plainly marked as to their function. Lower level controls shall not be operated unless permission has been obtained from the worker in the lift, except in case of emergency;

(e) When leaving the operating position and when work is stopped the operator of the mobile elevating work platform shall:

(i) Put the Working Platform in the lowest position;

(ii) Stop the prime engine/motor; and

(iii) Apply the parking brake securely and ensure the equipment is securely parked.

(f) Stop work at a height of 2 m or more in case of adverse weather in accordance with JSSS 2.7 [*Adverse Weather Requirements*].

(5) Measures of moving mobile elevating work platform

(a) Mobile elevating work platform shall not be moved when the boom is elevated in a working position with workers in the basket, except for equipment which is specifically designed for this type of operation; and

(b) Before moving the mobile elevating work platform for travel, the boom(s) shall be inspected to see that it is properly cradled and outriggers are in stowed position.

(6) Inspection and maintenance of mobile elevating work platform

(a) Carry out inspection in accordance with JSSS 4.2.1 [*Requirements Generally*]; and

(b) Carry out maintenance, repair and installation/removal of the Working Platform in accordance with JSSS 4.2 [*Inspection, Maintenance and Repair*] and JSSS 4.3 [*Safety Requirements*].

(7) Prohibition of use for other purposes

Mobile elevating work platforms shall not be used for any purpose other than the intended original purpose and for example shall never be used for hoisting loads.

6.6 ELEVATED ACCESS STRUCTURES

6.6.1 General

This Section includes safety measures relating to Elevated Access Structures which act as act as temporary access, parking, working and/or storage areas which also accommodate Contractor's Equipment, Goods and temporary facilities as necessary to permit the construction operations to be performed from these structures on the underlying or adjacent working area(s) within the Site.

6.6.2 Design and Management ~~Generally~~

(1) The design, management, provision, safe use and safe removal of Elevated Access Structures shall comply with the requirements of JSSS 6.1.1 [*Design and Provision of Temporary Works ~~Generally~~*].

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(2) For related JSSS requirements, refer to the following and other related parts of JSSS including:

(a) JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*]; and

(b) JSSS 1.37 [*Design and Management of Temporary Works*].

(3) Erection and Removal of Elevated Access Structures

The Contractor shall:

(a) Enclose the working area where possible with temporary fences or barriers, prevent entry of any unauthorised personnel or prevent vessels from entering in the case of offshore or river, lake or marine works and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry];*

(b) Use of Measures to prevent Workers, Vehicles, Contractor's Equipment and Goods from falling;

The Contractor shall design and provide suitable measures to prevent workers falling including for example handrails specified in JSSS 2.5.5 [*Handrails*] to the perimeter of Elevated Access Structures.

The Contractor shall design and provide suitable measures to the perimeter of Elevated Access Structures prevent Vehicles, Contractor's Equipment and Goods falling including for example steel edge barriers and kerbs.

All edge barriers and kerbs shall be painted in black and yellow bands to show them as a hazard.

(c) Use of Measures to prevent collision with vessels;

For marine work or work in rivers or lakes, the Contractor shall provide all necessary warning signs, audible alarms, beacons and lighting and serve all notices to the relevant authorities as necessary to ensure that all shipping, boats and other vessels are aware of changes to navigation due to the presence of any Elevated Access Structures and that all risk of collision is avoided.

6.6.3 Further Safety Requirements

The Contractor shall take all necessary measures to ensure the safe provision, use and removal of Elevated Access Structures, including but not restricted to the following:

(1) Provide warning notices clearly showing the maximum Rated Capacity in clearly visible locations.

(2) Always respect the maximum Rated Capacity, taking account of all the persons/personnel, vehicles, Goods, etc. on the Elevated Access Structures.

(3) Provide any further signs containing user information or other mandatory usage requirements such as speed limits and markings all as necessary to demarcate roadways and walkways, working, storage, parking and other areas.

(4) Designate all work to and on any Elevated Access Structures and during use, as Dangerous Work and take all further measures that are required by JSSS 2.3 [*Prohibition of Entry*].

(5) Provide walkways in accordance with JSSS 6.4 [*Walkways*]

(6) Provide adequate lighting to ensure the safety of Contractor's Equipment, equipment of other parties, vehicles and persons in transit or whilst working.

(7) (for offshore work) Provide rescue and lifesaving equipment to be used in the event that any persons fall into the water, including a rescue boat and life belts or the like.

(8) Provide PFAS or PFRS to workers where appropriate including those engaged in the construction and removal of the Elevated Access Structures.

(9) Prevent any accident or collision by ensuring that all Contractor's Personnel that may be working on Elevated Access Structures and any Employer's personnel and other persons that may be present on such structures are fully informed about the work that may be in progress from time to time, including transportation and delivery of Goods and of the measures and any precautions that must be complied with.

(10) Provide relevant training in accordance with JSSS 1.20 [*Safety Induction Training*] to ensure the safety of all persons before they commence work on the Elevated Access Structures.

6.6.4 Inspection and Maintenance

Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the Contractor shall comply with the following:

(1) Every Elevated Access Structure shall be thoroughly examined by the HSO:

(a) Before it is brought into use;

(b) After any substantial alteration or extension;

(c) At least once in every 7 days; and

(d) Whenever it has been exposed to adverse climatic conditions, heavy seas, earthquake or other factors which may have affected its safety.

(2) A written record of the examination and regular inspections and details of any repair measures shall be prepared by the HSO.

(3) The examination and regular inspections shall include:

(a) Check if the Elevated Access Structure is provided and used in accordance with the Method Statement, Safety Plan and its design;

(b) Check items include:

(i) The structural condition of the Elevated Access Structure and of any deterioration, defect, damage or settlement;

(ii) Safety facilities including those for fall prevention are intact and fully operational; and

(iii) All other requirements of this Section are still being complied with.

(4) The Contractor shall carry out all necessary remedial and repair work necessary to rectify any deterioration, defect or damage and shall if necessary stop the use of the Elevated

Access Structure until such work has been properly completed, re-inspected and re-certified as safe for use by the HSO.

6.7 TEMPORARY ELECTRICAL INSTALLATIONS

6.7.1 General

(1) This Section contains safety requirements for the provision, use, relocation, repair and removal of temporary electrical power and lighting installations at the Site.

(2) Although the work in this Section is temporary, it shall be particularly noted that temporary electrical installations shall be designed, installed, inspected, tested, altered and removed by Contractor's Personnel that are qualified electricians, trained and certified for such operations in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*] and that follow strict procedures prepared by the Contractor and specified in the Method Statement and Safety Plan.

(3) The Contractor shall take precautions against the risk of death or injury from electricity during construction work. In particular, when executing refurbishment work in existing buildings where greater risk exists, the Contractor shall locate and indicate the types, positions and routes of all underground and concealed services with clearly visibly markings on ground, floor, wall and ceiling surfaces, and take all actions necessary to ensure construction safety in compliance with JSSS 3.1.2 [*Preparation and Work Planning*].

(4) The temporary electrical installations and all equipment used shall be safe, regularly inspected and properly maintained.

(5) Temporary electrical installations shall be removed immediately upon completion of the work for which they are used.

6.7.2 Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for Temporary Electrical Installations complying with OSHA 1926.405 [Wiring methods, components and equipment for general use].

6.7.3 General Safety Requirements

The Contractor shall avoid accidents to workers engaged on electrical works and also those workers who are not electricians but who are carrying out other works, by taking appropriate measures including the following:

(1) Understanding the system

(a) The Contractor shall ensure that Contractor's Personnel responsible for planning, managing or performing any part of the Works fully understand the danger in relation to electrical system on the Site or inside any existing building where any work is to be carried out, to ensure that the integrity of the electrical system is not compromised and all workers remain safe; and

(b) The Contractor shall ensure that relevant parts of existing electrical systems are isolated if the execution of any part of the Works may disturb or damage the existing electrical system and expose persons to electrical danger.

(2) Portable electrical equipment

(a) The Contractor shall ensure that tools, plugs and cables designed for domestic use are not used for construction works unless authorised by the HSO;

(b) The Contractor shall use cordless tools or other tools suitable for the Site conditions;

(c) Where cordless tools are not used, as a first preference the Contractor shall use cord and plug connected tools on a low voltage supply system with a maximum voltage to ground not exceeding 50V subject to the supply system at the Site;

(d) Where cordless tools or cord and plug connected tools with power supplies as described in (c) above are not available then, subject to authorisation by the HSO, the Contractor shall select cord and plug connected tools which are operated as stipulated below:

Under any of the following conditions, exposed non-current carrying metal parts of cord and plug connected tools shall be grounded:

(i) If in a hazardous (classified) location stipulated in OSHA 1926.407 [Hazardous (classified) locations];

(ii) If operated at over 150V to ground, except for guarded motors and metal frames of electrically heated appliances if the appliance frames are permanently and effectively insulated from ground;

(iii) If the equipment is one (1) of the types listed below:

- Hand held motor-operated tools;
- Cord and plug connected equipment used in damp or wet locations or by workers standing on the ground or on metal floors or working inside of metal tanks or boilers;
- Portable and mobile X-ray and associated equipment;
- Tools likely to be used in wet and/or conductive locations; and
- Portable hand lamps.

(3) GFCI (also referred to as RCD)

(a) Ensure that equipment, tools, leads, wires or cables are free of defect or damage, in particular when mains power supply is used;

(b) Use GFCI or RCD to detect any faults in the electrical system and rapidly switch off the supply; and

(c) GFCI or RCD shall be properly installed and enclosed; properly checked; treated with care; kept free of moisture and dirt; and protected against vibration and mechanical damage.

(4) Lighting systems

Protect cabling and bulbs against breakage. If a bulb breaks, the exposed filament may present a hazard. Have a system for checking bulbs regularly to maintain electrical safety and to keep the site well lit.

(5) Temporary electrical systems shall not be used in excess of intended loads or rated capacity whichever is less.

(6) Temporary electrical systems shall not be used for any purpose other than the intended original purpose.

(7) Regularly inspect power tools and take them out of service if they are damaged. Tools should be serviced by qualified electricians; makeshift repairs are prohibited.

6.7.4 Method Statement ~~for Temporary Electrical Installations~~

The Method Statement for temporary electrical installations (required by the Contract and JSSS 1.9 [*Contractor's Method Statements*] shall refer to the Laws of the Country and the relevant authority which supplies power to the Contractor in relation with relevant temporary electrical installations and shall show:

(1) Required Standards and voltages of electric wires and cables.

(2) Protective work for electric wires and cables.

(3) Electric diagram.

6.7.5 Responsible Personnel

(1) The Contractor shall post the name and contact information for the person in charge of managing and operating the temporary electrical installation.

(2) All other persons shall be prohibited from operating repairing or interfering with the temporary electrical installation unless otherwise instructed or approved by the HSO or person in change.

6.7.6 Inspection, Maintenance and Repair

The Contractor shall inspect the temporary electric facilities and perform all requisite maintenance, replacement and repair to ensure the continued and safe operation including the following:

(1) Daily inspection

(a) Prepare a daily inspection checklist of the temporary electric installations including the condition of associated buildings, enclosures, fences and the like;

(b) Inspect daily; and

(c) Record the inspection results.

(2) Periodical inspection

(a) Prepare periodical (weekly and monthly) inspection checklist including measurement of insulation resistance values of temporary electric installations and the operating status of protective devices against overcurrent, grounding fault, etc.;

(b) Inspect periodically; and

(c) Record the inspection results.

(3) Maintenance and repair

(a) As a result of inspection, carry any maintenance, repair or replacement if and as necessary;

(b) Stop operation of the temporary electric installations or affected parts thereof and prevent any further operation until maintenance, repair or replacement is completed; and

(c) Reinspect, the temporary electric installations or parts thereof, and after the HSO has declared same as safe for use, operation can then re-commence.

6.7.7 Safety Measures ~~During the Work~~

The Contractor shall take the following safety measures when installing, moving, removing, repairing temporary electric facilities.

(1) Cabling/Wiring

(a) Carry out cabling/wiring work so that safety distances between cabling/wiring and any other cabling/wiring, posts, gantries, other structures, buildings, enclosures Contractor's Equipment, vehicles and persons are maintained;

(b) If appropriate separation distances cannot be maintained, enclose cabling/wiring in insulated ducts, conduit or trunking;

(c) Locate cabling/wiring where it does not obstruct other works; and

(d) Always enclose cabling/wiring in insulated ducts, conduit or trunking in working areas or Operational Areas to avoid any risk of contact, damage or injury.

(2) Switchgear, Panels and Switches

(a) Enclose switchgear, panels and switches in waterproof and lockable metal enclosures to suit the environmental conditions, all of which shall be grounded; and

(b) Fuses and circuit breakers shall be suitable for their use and load capacity.

(3) Power Receiving Equipment and Transformers

(a) Power receiving equipment, transformers and the like, shall be located in securely fenced or enclosed and locked compounds, enclosures or buildings from which entry by unauthorised persons shall be prohibited;

(b) Any work in such areas shall be designated as Dangerous Work and the provisions of JSSS 2.1.5 [*Further Requirements for Dangerous Work*] shall be applied; and

(c) All such places shall be clearly indicated as dangerous no entry areas with clear and obvious signage.

(4) Grounding (earthing)

(a) All temporary electric installations shall be grounded for each part to prevent the risk of electric shock due to electrical leakage; and

(b) Grounding electrodes shall be highly conductive such as copper.

(5) Relocation and Repair Work

(a) Relocation and repair work to or any work in the vicinity of temporary electrical installations shall only be performed after the power supply has been turned off, isolation has been confirmed, confirmation that temporary protective casings have been installed over existing cables and no electricity is measured by electricity detection;

(b) When re-energising temporary electric installations during or after any relocation or repair work, the Contractor shall ascertain in advance that there will be no electric shock to any persons engaged in the relocation or repair work of temporary electrical installations or any work nearby; and

(c) When installation, relocation or repair work of temporary electric installations is completed, the facilities shall be operated only after testing and inspection of the installation by the HSO and after the HSO has declared same as safe for use.

6.8 ELECTRIC AND GAS WELDING AND CUTTING

6.8.1 General

(1) This Section contains safety requirements for electric and gas, welding and cutting.

(2) Electric and Gas welding and cutting work shall be designated as Dangerous Work and the provisions of JSSS 2.1.5 [*Further Requirements for Dangerous Work*] shall be applied.

(3) Electric and Gas welding and cutting work shall only be performed, inspected and tested by Contractor's Personnel that are qualified welders, trained and certified for such operations in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*] and that follow strict procedures prepared by the Contractor and specified in the Method Statement and Safety Plan.

6.8.2 Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for Electric and Gas Welding and Cutting complying with the following standards:

(1) OSHA 1926.351 [Arc welding and cutting].

(2) OSHA 1926.351 [Gas welding and cutting].

6.8.3 Electric Welding and Cutting

The Contractor shall take the following measures for the electric welding and cutting:

(1) Check measures before operation:

(a) Automatic voltage reduction device for reducing no load voltage to prevent the shock hazard, is fitted and is functioning properly;

(b) Frame of welding machine is properly grounded;

(c) The ground resistance shall be sufficiently low for the proper function of GFCI or RCD;

(d) Grounding conductor is installed properly and working;

(e) There is no damage to welding cables;

(f) There is no damage to electrode holder, insulation of ground clamp or cable connections; and

(g) Carry out all such further checks that are required by the manufacturer's official maintenance and repair manual.

If any items are found to be missing or defective, the Contractor shall prohibit use until it has been repaired or replaced and the equipment has been inspected, tested and certified as safe for use by HSO, before it can be used.

(2) Measures to be adopted during operation:

(a) Prevent stray currents by securely fixing the ground cable with a ground clamp to a suitable ground, close to the work location;

(b) Use cables of the correct type and size and never use alternatives such as tools or reinforcing bars;

(c) When not working, remove electrode from holder and turn off the welding machine;

(d) Weld only in suitable environment and climatic conditions. Stop working outdoors during rainfall and take measures to prevent the welding machine, cables and accessories from getting wet;

(e) If any worker receives an electric shock, the Contractor shall stop the work immediately, identify the cause, prohibit use of the equipment until it has been repaired or replaced and the equipment has been inspected, tested and certified as safe for use by HSO, before it can be used;

(f) Ensure that workers wear appropriate PPE including personal face protectors for welding and protective gloves as specified in JSSS 2.9 [*PPE and First Aid*]; and

(g) Instruct all workers not to look directly at the electric arc with their naked eyes.

(3) Periodical inspection of welding machines and welding equipment:

(a) Electric welding and cutting equipment shall be inspected and tested periodically in accordance with JSSS 4.2 [*Inspection, Maintenance and Repair*] and JSSS 4.3 [*Safety Requirements*] and

(b) The voltage reduction device shall be regularly inspected and tested at least once every six (6) months.

6.8.4 Gas Welding and Cutting

The Contractor shall take the following measures for gas welding and cutting:

(1) Check measures before operation:

(a) Flashback arrestor to stop flame back-up into the equipment or gas supply line is installed;

(b) There is no damage to gas cylinders, regulators, flashback arrestor, hose bands, hoses, blow pipes, tip nozzles, and other accessories and equipment;

(c) Gas cylinders, regulators and caps and other relevant accessories and equipment have been inspected periodically and certified by HSO as safe for use; and

(d) Carry out all such further checks that are required by the manufacturer's official maintenance and repair manual.

If any items are found to be missing or defective, the Contractor shall prohibit use until it has been repaired or replaced and the equipment has been inspected, tested and certified as safe for use by HSO, before it can be used.

(2) Handling of gas welding and cutting equipment

(a) Gas hoses and gas weld sets, shall not be damaged or worn to prevent gas leakage;

(b) Gas weld sets shall be turned off when not in use and shall not be left lying around;

(c) Gas pressure regulators shall not be operated during cutting or welding operation;

(d) Connections between cylinders, gas hoses and gas weld sets shall be securely tightened with appropriate connectors;

(e) When tip nozzle overheats, flashback is likely to occur, therefore interrupt continuous working, from time to time and cool the nozzle by submerging in water whilst discharging oxygen at low pressure; and

(f) When finishing or interrupting work, completely close the container valves and vent gas in regulators.

(3) Handling of gas cylinders

Workers shall be trained to handle gas cylinders so that they are aware of the following requirements:

(a) Not to place gas cylinders:

(i) Where there is insufficient ventilation;

(ii) Near to fires, flames, heat sources, electrical sparks or grinding sparks; and

(iii) Near to Dangerous Goods or Hazardous Substances or near to Hazardous Areas.

(b) Handle gas cylinders with care and do not drop, throw or mishandle;

(c) Keep cylinders cool by shading and do not expose to direct sunlight;

(d) Keep cylinders standing during storage and use;

(e) Seal cylinders when transporting;

(f) Place compressed gas cylinders upright at all times except while cylinders are actually being hoisted or carried;

(g) Not to place gas cylinders in the vicinity of lightning conductors or grounding rods for electrical equipment;

(h) Mark all gas cylinders as either full or empty and separate them from each other in storage and during use; and

(i) When there is a risk of freezing, do not place gas cylinders in wet or humid places. When valves of cylinder or regulating valves freeze, thaw them out with hot water, do not flame or direct fire.

(4) Safety measures for gas welding and cutting work:

(a) Ensure that all internal and external working areas are fully ventilated;

(b) When checking for gas leakage from the gas welding or cutting equipment, use a liquid detergent or similar, never use flames or fire;

(c) Provide adequate fire extinguishing equipment near the working place, always maintained and certified, suitably labelled, available and positioned so that it can be used immediately when necessary;

(d) Remove oil and dust adhering to the valve of gas cylinders;

(e) Ignition and digestion shall be accomplished only with oxygen supply valve closed;

(f) Ensure that workers wear appropriate PPE including personal face protectors for welding and protective gloves as specified in JSSS 2.9 [*PPE and First Aid*]; and

(g) Instruct all workers not to look directly at the weld with their naked eyes.

(5) Periodical inspection of gas welding and cutting equipment.

Gas welding and cutting equipment shall be inspected and tested periodically in accordance with JSSS 4.2 [*Inspection, Maintenance and Repair*] and JSSS 4.3 [*Safety Requirements*].

6.8.5 Fire Prevention

The Contractor shall take all necessary measures to prevent fires caused by welding and cutting works, including:

(1) When welding or cutting work is carried out on/in containers previously filled with Dangerous Goods or Hazardous Material, the containers shall be thoroughly cleaned so that they are completely free from such Dangerous Goods or Hazardous Material before starting work.

(2) When welding or cutting work is carried out at a place where there is a risk of causing fire either to adjacent buildings or to Contractor's Equipment, Goods, debris, waste or other materials, then fire prevention measures shall be adopted. This may include moving all such Contractor's Equipment, Goods, debris, waste or other materials, from the

working area and taking other protective measures.

(3) Welding or cutting work shall not be conducted near Dangerous Goods or Hazardous Substances or in or near to Hazardous Areas.

(4) A sufficient number of fire extinguishers of appropriate types shall be provided, near the working place, always maintained and certified, suitably labelled, available and positioned so that they can be used immediately when necessary.

(5) Spotter(s) shall be provided at areas where welding or cutting work is taking place when there is risk of fire by the heat transmitted or sparks of welding or cutting, getting into walls, floors, ceilings and the like.

(6) When welding, cutting, or heating work is performed on walls, floors, and ceilings, since direct penetration of sparks or heat transfer may introduce a fire hazard to an adjacent area, the same precautions mentioned in this JSSS 6.8.5 shall be taken on the opposite side as are taken on the side on which the welding work is being performed.

CHAPTER 7: EXCAVATION WORKS

7.1 GENERAL

7.1.1 Scope

(1) This Chapter specifies the safety requirements for excavation works which include:

(a) Open-cut and all other types of surface excavation;

(b) Pits, trenches, basements and all other types of structural excavation;

(c) Excavation using all methods such as manual excavation and machine excavation;

(d) Excavation by Blasting (hereinafter referred to as "Blasting Works");

(e) All associated embankment filling, backfilling and disposal; and

(f) Earthwork Support.

and which are hereinafter collectively referred to as "Excavation Works".

(2) General requirements for example for Contractor's Equipment, Temporary Works and other related works all which apply to the work in this Chapter, are included in other Chapters of JSSS.

Additional particular requirements are contained in this Chapter.

7.1.2 Monitoring ~~of Excavation Works and Surroundings~~

(1) The Contractor shall monitor the Excavation Works and surroundings, to demonstrate that the Excavation Works are performing safely, to the designed limits and for the intended purpose.

(2) For more details, refer to JSSS 2.1.7 [*Monitoring and Records*].

7.2 PARTICULAR SAFETY MEASURES

7.2.1 General

(1) The Contractor shall plan all Excavation Works so that they can be executed in a safe and methodical manner.

(2) Unless otherwise specified in the Particular Safety Specification, the Contractor shall be responsible for choosing manual or machine excavation, selecting types of Contractor's Equipment, types of Temporary Works, Earthwork Support, spoil removal, storage and handling, controlling ground and surface water, forming embankments and cuttings and the like.

(3) Sloping sides and benching to sides of excavations shall comply with OSHA 1926.652 [Requirements for protective systems, (b) Design of sloping and benching systems], dependant on the dimensional constraints of the Site and the nature of the soil, hydraulic and geological conditions.

(4) The Contractor shall be responsible for preserving the structural integrity of all excavated sides and shall provide whatever Earthwork Support may be necessary to achieve this, in accordance with the requirements of JSSS 6.2 [*Earthwork Support*].

(5) The Contractor shall execute all Excavation Works and associated filling, backfilling and Earthwork Support without weakening any ground or causing any damage to Other Properties.

The Contractor shall also ensure the safety of all persons, whilst they are working in, under or adjacent to any excavation on or outside the Site.

The Contractor shall take all necessary measures to prevent the occurrence of any such weakening or damage to Other Properties and obtain the prior consent of the Engineer to

such measures before commencing relevant parts of the Excavation Works.

(6) If loose rock, boulders, trees and the like, are positioned above working areas and where there is any risk that these may pose a danger to workers, the HSO shall prohibit workers from entering the working areas and issue appropriate instructions including for example to:

(a) Provide protective overhead safety barriers or safety nets;

(b) Carefully remove loose rocks; and

(c) Provide (or improve existing) Earthwork Support to unstable areas.

7.2.2 Safety Measures Before Commencing Excavation Works

(1) The HSO shall inspect the Excavation Works area and surrounding areas before starting work each day and after adverse climatic conditions or earthquake as described in JSSS: 2.7 [*Adverse Weather Requirements*]. The inspection shall include the following areas and items:

(a) Potentially unsafe areas where there may be any risk of landslide;

(b) Loose rock or boulders which may be at risk of falling;

(c) Cracks in the Excavation Works area and the surrounding area;

(d) Changes in ground water level, surface or any spring water; and

(e) Deleterious effect due to freezing conditions.

(2) As a consequence of such inspections if the HSO identifies any outstanding risks, the HSO shall prohibit the continuation of any affected work, take necessary corrective measures and make any necessary amendment to the Safety Plan and instruct all Contractor's Personnel associated with such affected work of any revised safety measures before work is allowed to commence and continue in order to ensure their continued safety.

(3) Install facilities such as stairs and ramps as means of access or egress from the excavation site in accordance with JSSS 6.4.3 [*Vertical Access*].

(4) Provide support or protection for the underground services appropriately in accordance with JSSS 3 [*Existing Underground, Concealed and Overhead Services*], and take measures, according to the situation, such as indicating clearly the location and precautions of the underground service and providing protective fences for the services.

(5) Prevent workers and construction equipment/transport vehicles from falling at the excavation site, in accordance with JSSS 2.3 [*Prohibition of Entry*], install all necessary entry prevention facilities including fences, temporary enclosures, warning flags, "no entry" signs and the like and placing Spotters.

(6) Take the following measures when there is a risk of danger to third parties, workers, construction equipment, etc. by the fall of excavated soil/rock into the lower parts (bottom) of the excavation site:

(a) Identify dangerous locations, install entry prevention facilities such as fences, temporary enclosures, warning signs, etc. in accordance with JSSS 2.3 [*Prohibition of Entry*]; and

(b) Install protective fences that can catch falling rocks, etc.

(7) Preventive measures against falling rocks

(a) To protect workers from the dangers of falling of loose rocks and soils from the excavated surface, remove the loose rocks, etc. and take appropriate protective measures; and

(b) When there is a risk of falling of loose rocks/soils due to the excavation, take measures such as provision of earth retaining and protective net beforehand, and prohibiting workers from entering in the excavation site.

7.2.3 Safety Measures During Excavation Works

During the Excavation Works, the Contractor shall:

(1) Not place spoil, filling or Contractor's Equipment near the vertical edge of excavated surfaces.

(2) Stop the Excavation Works where a sign of ground collapse is identified during excavation, evacuate all Contractor's Personnel, implement all necessary safety measures, prohibit Contractor's Personnel from recommencing work until all safety measures have been taken.

(3) Backfill any temporary excavation area as soon as possible after the relevant work is completed.

(4) For places where open Excavation Works are performed, maintain the necessary illuminance to perform the work safely.

7.3 MANUAL EXCAVATION WORKS

7.3.1 General

During manual Excavation Works, the Contractor shall:

(1) Not undermine any excavation under and beyond the vertical cutting face.

(2) Not excavate under existing foundations.

(3) Maintain sufficient distance between workers.

(4) When breaking or removing loose rock, pay attention to the stability of the rock and the direction of its fall.

(5) When using a lever for removing rock, select equipment that has appropriate length and strength for the work.

7.4 MECHANICAL EXCAVATION WORKS

Refer to JSSS 4 [*Contractor's Equipment*].

7.5 TRENCHES, PITS AND OTHER TYPES OF STRUCTURAL EXCAVATION

7.5.1 General

The Contractor shall provide Earthwork Support in accordance with JSSS 6.2 [*Earthwork Support*] to prevent any danger to workers due to the collapse of excavated surfaces during the excavation of trenches, pits and other types of structural excavation.

7.5.2 Safety Measures ~~During Structural Excavation~~

(1) Materials and equipment to be used for Earthwork Support shall be appropriate for the width and depth of the excavation and free from damage or defects that might impair their proper function.

(2) Workers shall not be allowed to enter any excavation until Earthwork Support is installed prior to the work commencing.

(3) Excavation to a level greater than 60cm below the planned bottom level of support when the Earthwork Support itself is not yet installed shall not be allowed.

(4) If temporary removal of individual members of the Earthwork Support is necessary, safety measures shall be taken to ensure the safety of workers, such as installing temporary members to hold the loads imposed on the system.

(5) When removing Earthwork Support, the Contractor shall not allow anyone other than the workers engaged in the removal work to enter the area and the vicinity.

(6) The Contractor shall perform backfilling of any excavation in parallel with the removal of the Earthwork Support.

7.6 BLASTING WORKS

7.6.1 Scope

(1) This Section specifies safety measures for Blasting Works generally for the removal of rock that cannot be undertaken using conventional excavation techniques.

(2) Blasting Works for tunnelling is not included in the scope of this Chapter.

7.6.2 General ~~Blasting~~ Requirements

(1) Blasting shall only be permitted to be performed by the Contractor:

(a) When it is safe to do so and when there is no reasonably identifiable risk of injury or damage being caused to persons or property within or outside the Site;

(b) Where it is not specifically prohibited by the Particular Safety Specification; and

(c) When the Contractor has received the Engineer's approval or instruction.

(2) Blasting when approved, shall only be permitted at times which have been predetermined and agreed with the Engineer and any relevant authority.

(3) The Blasting Works plan shall be described in the relevant Method Statement.

(4) This Section applies particularly where there may be any risk of injury or damage to persons and property from flying debris within or outside the Site.

7.6.3 ~~Blasting~~ Noise

~~Noise levels measured at the boundary of the Site shall not exceed a sound pressure level of 85 dBA and/or a peak sound pressure level of 110 dB.~~

Noise from blasting in the Site shall be controlled in accordance with JSSS 2.1.4 [*Noise*].

7.6.4 Compliance Standards

(1) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for Blasting Works complying with BS 5607: Code of Practice for the Safe Use of Explosives in the Construction Industry.

(2) The Contractor shall obtain the necessary permits, licenses or approvals for Blasting Works and the handling and storage of Explosives associated therewith. The Employer, at the request of the Contractor, shall provide such reasonable assistance to allow the Contractor to obtain properly such permits, licenses or approvals.

7.6.5 Personnel ~~for Blasting~~ ~~Works~~

(1) Further to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*], the Contractor shall assign the following personnel for Blasting Works:

(a) Explosives engineer; and

(b) Shotfirer(s).

(2) Responsibilities and requirement of personnel for Blasting Works.

(a) The Explosives engineer shall plan the Blasting Works, lead the Blasting Works at the Site and perform the safety management of the Blasting Works; and

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コメントの追加 **[MJD152]:** To simplify and make headings consistent

コメントの追加 **[SS153]:** 19. (66)

コメントの追加 **[SS154]:** No. 66
The first sentence is deleted because the specification for noise in Hong Kong may be special due to works in crowded town.
NK agreed to delete it as there is no such regulation as Hong Kong.

コメントの追加 **[MJD155R154]:** No comment will change

コメントの追加 **[SS156R154]:** Confirmed.

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(b) Shotfirer(s) shall perform safe handling, transportation and storage of Explosives, and perform Blasting Works and site safety management.

(3) Safety education and guidance

Further to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*], the Contractor shall ensure that the Explosives engineer and shotfirer(s) have sufficient knowledge of and are able to comply with the following:

(a) Nature of hazards associated with Blasting;

(b) Unsafe conditions and conduct in performing Blasting Works;

(c) Procedures for Blasting Works;

(d) Evacuation and return procedures for any evacuated workers and personnel;

(e) Safety measures when misfiring of Explosives occurs; and

(f) Actions for Emergency Response.

7.6.6 ~~Blasting~~ Safety Plan

コメントの追加 **[MJD158]:** To simplify and make headings consistent

The Contractor shall prepare a Blasting Safety Plan describing all required safety measures for Blasting Works in addition to the items prescribed in JSSS 1.7 [*Contractor's Safety Plans*] and including the following:

(1) Risk analysis and countermeasures.

(2) Safety measures for transportation, safekeeping, use and disposal of Explosives.

(3) Safety measures for Contractor's Personnel, Employer's Personnel and any other persons, the general public, neighbouring residents and building owners on or adjacent to the Site and who may be affected by the Blasting Works (hereinafter collectively referred to as "persons affected by the Blasting Works" in this Section).

(4) Determination of Exclusion Zone.

(5) Identification of affected areas, buildings, structures and property.

(6) Environmental and health compliance requirements including vibration, noise, fire, and the like.

(7) Environmental monitoring plan and methods to record the impact of Blasting on affected buildings, structures and property.

(8) Trial Blasting.

(9) Identification of the Explosives engineer and shotfirers to distinguish from other workers.

(10) Placement of Spotters.

(11) Method of notification of the start date and time of Blasting Works and the serving of notice immediately before commencement of Blasting Works to other persons affected by the Blasting Works.

(12) Evacuation method of all personnel from the Exclusion Zone before Blasting.

(13) Warning system at the time of Blasting.

(14) Procedures and methods for dealing with misfired Explosives (The plan for the treatment procedures for misfired Explosives shall be prepared by reference to BS 5607: Clause 10.5 Misfires).

(15) List of legal and administrative records.

7.6.7 Risk Prevention ~~of Workers and Neighbouring Residents~~

(1) Notice of Blasting

The Contractor shall notify all persons affected by the Blasting Works. of the planned schedule and start dates and times for Blasting Works. Such information shall be updated as necessary, immediately before the Blasting Works commence.

(2) Risk Prevention Measures

The Contractor shall take all necessary measures to prevent any injury or damage to all persons affected by the Blasting Works, including the following:

(a) Prohibition of overcharging with Explosives more than that specified in the Method Statement prepared based upon the trial Blasting;

(b) Prevention of scattering of flying rock and other debris;

(c) Prevention of collapse of surrounding rocks or ground areas;

(d) Demarcate the Exclusion Zone for Blasting Works and take necessary measures to prohibit any unauthorised persons from entering the Exclusion Zone by a system of signs, signals and Spotters in accordance with BS 5607: Clause 7.4.2 [Blast warning procedures] including the following:

(i) Provide audible warning sirens to warn of impending, current and completed Blasting operations; and

(ii) Place bulletin boards showing the Blasting time, siren code and other precautions at the boundary of the Dangerous Work area.

(e) Establish evacuation requirements, routes and assembly areas and inform all persons affected by the Blasting Works;

(f) Perform firing only after the Spotters have confirmed that all persons affected by the Blasting Works have been evacuated;

(g) Provide communication equipment between the shotfirer and the Spotter, maintain and test the equipment;

(h) Prohibit bringing into the Blasting areas any mobile phone that may affect adversely the electric detonator; and

(i) Unless otherwise specified in the Particular Safety Specification, perform Blasting Works only during the daytime.

7.6.8 Handling and Storage of Explosives

(1) Storage of Explosives

(a) The Explosive store to be constructed at the Site shall be a secure, substantial and fireproof building, environmentally controlled, locked, guarded and protected at all times and in accordance with the Laws of the Country;

(b) Appropriate numbers and types of personnel shall be assigned by the Contractor for safekeeping and security of the stored Explosives and any other materials;

(c) The Contractor shall maintain records of the types and quantities of all Explosives received and issued at the store, listing the date and time of receipt and issue and the names of all personnel concerned; and

(d) The Contractor shall submit the records to the Engineer when the Engineer requests.

For other storage requirements, the Contractor shall take necessary measures complying with BS 5607: Clause 9.3 [Storage].

(2) Transportation of Explosives

For transportation requirements, the Contractor shall take necessary measures complying

with BS 5607: Clause 9.4 [Transport of Explosives on Site].

(3) Quantity of Explosives at the Blasting site

(a) No Explosives shall be stored at the Blasting site;

(b) The quantity of Explosives to be transported from store to the Blasting site shall be limited to the estimated quantity of consumption for the Blasting; and

(c) Explosives not used on the day shall be returned to the Explosives store.

(4) Handling of Explosives

(a) Explosives shall be handled with extreme care ensuring that they are not hit, thrown or dropped;

(b) Containers for Explosives shall be solidly constructed from timber or non-conducting material and metals such as iron or foil must not be used on inner surfaces;

(c) Explosives and detonators shall be separately stored in lockable containers;

(d) The containers for Explosives shall protect against water ingress, impact damage; and

(e) Smoking, use of matches, lighters, flames, sparks and the like shall be prohibited in areas where Explosives are being transported, stored and handled, notice boards and warning signs shall be placed in suitable positions.

(5) Records of Blasting and Explosives

(a) The Shotfirer shall prepare daily work records showing the date and time of each Blasting operation, quantity of Explosives received, consumed, misfired and remaining, number of blast holes, charging method for the Blasting and treatment of misfired Explosives;

(b) The Explosives engineer shall check and countersign the Blasting Works records; and

(c) The Contractor shall submit the records to the Engineer when the Engineer requests.

(6) Notice to the Engineer

The Contractor shall notify the Engineer in writing as follows:

(a) Notification of delivery of Explosives to the store and from the store to the Site, shall each be given to the Engineer by no later than noon on the day preceding the scheduled date of the arrival of Explosives at the store and the delivery to the Site;

(b) Notification of intended Blasting Works shall be given to the Engineer by no later than noon on the day preceding the scheduled date of the Blasting operation; and

(c) Notification of the schedule for the following week's Blasting shall be given to the Engineer by no later than Friday morning of the preceding week.

7.6.9 Trial Blasting

The Contractor shall perform trial Blasting in accordance with the Blasting Safety Plan provided in JSSS 7.6.6 [~~*Blasting*~~ *Safety Plan*] for the following purposes, and modify the said Blasting Safety Plan according to the results of the trial Blasting:

(1) Confirm the characteristics of rock and topography at the Blasting site that will affect the Blasting operations.

(2) Confirm the suitability of the planned Blasting method, Explosives amount, and scattering prevention and other protection measures.

(3) Confirm the safety of all persons affected by the Blasting Works.

(4) Confirm that the Contractor's criteria are adequate for the purpose of JSSS 7.6.10 [*Monitoring ~~Impact of Blasting Works on Other Properties~~*].

The Contractor shall submit the trial Blasting reports with any consequent changes to the Blasting Safety Plan to the Engineer before proceeding with the Blasting Works.

7.6.10 Monitoring ~~Impact of Blasting Works on Other Properties~~

The Contractor shall comply with the requirements of JSSS 7.1.2 [*Monitoring ~~of Excavation Works and~~ Surroundings*].

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7.6.11 Particular Safety Measures ~~for Blasting Works~~

(1) Identification of Blasting workers

Provide clear visible identification mark, uniforms or marked safety helmets to distinguish the Explosives engineer and shotfirer(s) engaged in Blasting Works from other workers.

(2) Drilling Work

(a) No drilling shall be allowed in the hole formed for previous Blasting; and

(b) If any misfired Explosives are found during the drilling operation, the drilling shall be stopped and the misfired Explosives shall be treated in accordance with the procedures planned in JSSS 7.6.6 [*~~Blasting~~ Safety Plan*] and JSSS 7.6.12 [*Measures after Blasting*], (2) [*Treatment of misfired Explosives*].

(3) Explosives Charging

(a) Drilling operations shall not be permitted during charging of Explosives;

(b) Before charging, thoroughly clean the holes and do not leave any dust or debris; and

(c) Shock and friction such as the following, which can cause accidental initiation of the charges, shall be avoided:

(i) The over-vigorous use of stemming rods to force Explosives into a shot hole;

(ii) The use of drill rods or other metal tools in a shot hole containing Explosives;

(iii) Vehicles running over Explosives and other hazards involving impact or concussion; and

For other safety measures for charging work, the Contractor shall comply with BS 5607: Clause 10 [Safety when using Explosives].

(4) Handling Detonators

(a) Measures for Blasting using electric detonators:

(i) Make sure electric detonator's leg wires shall be kept short-circuited until they are connected into the circuit for firing;

(ii) Check if shotfiring cables are not cut or damaged;

(iii) Make sure electric detonators shall be kept away from electric lighting supplies, power supplies and other electrical sources that may cause electric leakage;

(iv) Check if there are no missing or wrong wiring connections or mis-connection with previous blast wires;

(v) Make sure there are no stray electric currents;

(vi) Do not use electric detonators if there is any danger of electrical interference for example from radio-frequency radiation near radio communication facility or radar; and

(vii) Install a lightning detector near the Blasting area, stop Blasting Works when there is a risk of lightning strike, and evacuate workers to a safe place.

For other safety matters for Blasting with electric detonator, the Contractor shall comply with BS 5607: Clause 10.4.3 [*Electric detonators*].

(b) Measures for Blasting using non-electric detonators:

(i) Do not cut or damage the shock tube; and

(ii) Before firing, check the connections visually and make sure that there are no missing or previous wiring connections or wrong wiring connections.

(5) Measures in Ignition:

(a) The connection between the shotfiring apparatus and shotfiring cable shall be made just before ignition;

(b) Ignition shall be made at a safe place isolated and protected according to the degree of the blast; and

(c) The handle shall be removed from the shotfiring apparatus except when igniting.

7.6.12 Measures after Blasting

(1) Confirmation of safety of Blasting area after Blasting:

(a) No persons other than the shotfirer shall enter the Blasting site or its vicinity until the shotfirer has inspected the area and confirmed that it is safe to re-enter; and

(b) The shotfirer shall inspect the area and surrounding area of the Blasting site to check that there is no danger of falling or collapsing of ground and rocks or misfired Explosives.

(2) Treatment of misfired Explosives

If, after ignition, the loaded Explosives did not explode, or if it is difficult to confirm the explosion, the misfired Explosives shall be treated in accordance with the treatment of misfired Explosives in the Blasting Safety Plan, and BS 5607: Clause 10.5 [Misfires] including the following:

(a) Procedure of treatment of misfired Explosives;

The following treatment procedure of misfired Explosives shall be taken:

(i) Immediate remedial action;

(ii) Delayed remedial action;

(iii) Further attempt at detonation; and

(iv) Inspection to confirm complete detonation.

The details of the above actions are stipulated in succeeding (b) to (d).

(b) Immediate remedial action;

The following initial actions shall be taken by the shotfirer:

(i) Prohibit anyone other than the shotfirer and other authorised personnel from entering the Blasting site;

(ii) Entry to the Blasting site shall only be permitted after the elapsed time from the occurrence of misfire as specified in the Blasting Safety Plan;

(iii) Disconnect from the shotfiring apparatus any removable handle or key and the shotfiring cable, and short-circuit or ground the bare wires together;

(iv) When safe to do so, examine the cable and connections for any defects, and remedy any defect so found;

(v) Make a further attempt to fire the shot;

(vi) Report to the Explosives engineer for further instructions;

(vii) Do not collect any exposed Explosives before further action is taken;

(viii) Do not allow drilling or any other work to be carried out in the vicinity of the misfire until the misfire has been remedied, unless this is directly involved in the treatment of the misfire; and

(ix) Other actions specified in BS 5607: Clause 10.5.4.1 [Initial actions].

After the initial actions, the following initial remedial actions shall be taken by the shotfirer:

(i) When safe to do so, examine the cable and connections for any defects, and remedy any defect so found; and

(ii) Make a further attempt to fire the shot.

(c) Delayed remedial action and further attempt at detonation:

(i) After the immediate remedial action, when necessary, the delayed remedial action and further attempt at detonation shall be taken.

(ii) The delayed remedial action and further attempt at detonation should be safe removal of the stemming to allow re-priming, or drilling and firing relieving holes placed so as to work away the rock surrounding the stemming and charge of the misfired shot holes.

(iii) The action and attempt shall be taken in accordance with the Blasting Safety Plan, and BS 5607: Clauses 10.5.4.2 [Written instructions], 10.5.4.3 [Attempts to re-fire], 10.5.4.4 [Drilling relieving holes] and 10.5.5 [Drilling relieving holes].

(d) Inspection to confirm complete detonation;

After further attempt at detonation, inspection shall be made to confirm complete detonation. If any non or partial detonation is found, remedial measures shall be taken according to Figure-1 Procedure to remedy misfires in BS 5607: Clause 10.5.1 [General].

(e) Take appropriate steps to prevent theft of Explosives and detonators or their initiation by an unauthorised person; and

(f) The Contractor shall promptly notify the Engineer of any misfire event and the remedial actions.

CHAPTER 8: FOUNDATION PILING WORKS

8.1 GENERAL

8.1.1 Scope

(1) This Chapter specifies the safety requirements for piling works which include:

(a) Driven Piling;

(b) Cast-in-place Piling; and

(c) Hand-dug Piling

and which are hereinafter collectively referred to as "Foundation Piling Works".

(2) General requirements for Contractor's Equipment, Temporary Works and other related works all which apply to the work in this Chapter, are included in other Chapters of JSSS.

Additional particular requirements are contained in this Chapter.

8.2 PARTICULAR SAFETY MEASURES

8.2.1 General

(1) Foundation Piling Works and all operations connected therewith shall be designated as Dangerous Work and the Contractor shall enclose the working area with temporary fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry*].

(2) Unless otherwise specified in the Contract, the Contractor shall be responsible for selecting methods of working and types of Contractor's Equipment and Temporary Works suitable for the purpose in conformity with GC 4.10 [*Site Data*].

(3) In accordance with JSSS 6.2 [*Earthwork Support*] the Contractor shall be responsible for maintaining the structural integrity of the sides of all excavated or drilled pile excavations and shall provide whatever temporary or permanent Earthwork Support that may be necessary to achieve this.

(4) The Contractor shall execute all Piling Works without weakening any ground or causing any damage to Other Properties.

(5) The Contractor shall also ensure the safety of all persons, whilst they are working in, under or adjacent to any piling excavation on or outside the Site.

(6) The Contractor shall take all necessary measures to prevent the occurrence of any such weakening or damage to Other Properties and obtain the prior consent of the Engineer to such measures before commencing relevant parts of the Foundation Piling Works.

Such measures shall include the provision of permanent or temporary supports and reinforcing of foundations, structures, buildings, roads or paved areas or the like, either on or adjacent to the Site.

8.2.2 Safety Measures Before Commencement

The Contractor shall plan all Foundation Piling Works before commencement so that they are executed in a safe and methodical manner. The safety measures before commencement of the Works shall be as follows:

(1) The HSO shall inspect the Foundation Piling Works' working area and surrounding areas and ensure that all of the following is acceptable before allowing the Foundation Piling Works to commence:

(a) The ground is level and capable of supporting the loading of the Contractor's Equipment including any dynamic effect of the Foundation Piling Works and the load of any materials to be placed thereon;

(b) The area is clear of any obstructions; and

(c) The areas are properly drained and free from standing water.

If necessary, the Contractor shall improve the ground by stabilising, cleaning, draining, providing paving and/or placing steel decking and temporary piling and the like to provide a suitable, clean, dry and safe working area without causing any risk to the stability of Contractor's Equipment or materials.

8.2.3 Safety Measures for Transportation on Site - Appropriate Equipment and Vehicle

Piles and pile casings, liners, reinforcement cages and the like shall not be transported or relocated by use of pile driving or drilling machines. In all cases the Contractor shall use cranes accompanied or where necessary, trucks and flatbed trailers for the transportation or relocation.

8.2.4 Safety Measures for Driven Piling

The Contractor shall:

(1) Select correct rigging method and appropriate Rigging Equipment to suit the characteristics of the lifting or pile driving machine and the piles, so that piles are mishandled or dropped.

(2) Keep workers other than those directly engaged in the driving operations away from the direct working location when driving operations are taking place.

(3) Provide a lifeline to fix PFAS on the lead when the worker works on the lead of pile driving machine in addition to the fall prevention measures stipulated in JSSS 2.5 [*Fall Prevention*].

8.2.5 Safety Measures for Cast-in-place Piling

When any Cast-in-place Piling Works are adopted, the Contractor shall take appropriate safety measures taking account of features of different methods of work, in particular:

(1) Pile Excavation Works using All-Casing Piling Method:

(a) Keep workers other than those directly engaged in the piling operations away from the pile excavation machine while installing and removing the casing and operating the drop hammer grab. Before any worker is allowed to access the casing or equipment whilst the hammer grab is being operated, ensure that the hammer grab is secured in the casing; and

(b) When any worker needs to enter the casing, confirm that there is no danger in accordance with JSSS 2.1.5 [*Further Requirements for Dangerous Work*].

(2) Pile Excavation Works for Reverse Circulation Bored Piling Method:

(a) When adding or removing drill rods, ensure that a Spotter is present to signal the operator of the drilling machine so that the hands and fingers of workers do not get caught in the work;

(b) Maintain the water level and concentration level of slurry (bentonite solution) in the drilled hole as planned in the Method Statement and prepare for addition or discharge of slurry, consequent to any fluctuation; and

(c) When providing a mud creation pit or a mud discharge pit, take measures to prevent workers from falling into such pits by providing barriers and signage.

(3) Pile Excavation Works for Auger Piling Method:

(a) To prevent overturn of drilling or auger equipment, consider the weight of excavated material in the drilling bucket or on the auger during operation; and

(b) Keep workers other than those directly engaged in the drilling works, away from the drill or auger to prevent injury through splashing or falling of mud or earth or

through contact with drill or auger.

(4) Placement of Concrete

(a) Reinforcement cages shall be designed, manufactured and hoisted into place so that they do not deform;

(b) Provide secure rigging slings and welded metal fixings to ensure that reinforcement cages are secure and do not slip or drop off the Hoisting Equipment;

(c) Tremie pipes shall be treated in the same manner so that they are secure and do not slip or drop off the Hoisting Equipment;

(d) Provide secure Rigging Equipment and operate hoisting to ensure that reinforcement cages and tremie pipes do not slip or drop off from the Hoisting Equipment in accordance with the Method Statement and Safety Plan; and

(e) When handling reinforcement cages and tremie pipes, ensure that a Spotter is present to signal the operator of the machine so that the hands and fingers of workers do not get caught in the work.

8.2.6 Safety Measures for Hand-dug Piling

Unless otherwise specified in the Particular Safety Specification, the Contractor shall comply with the requirements of the following (1) to (3):

(1) Hand-dug Piling shall not be adopted by the Contractor in ground with unfavourable conditions such as:

(a) High ground water levels;

(b) Weak geological structure including the possible presence of voids or caverns;

(c) Possible existence of Hazardous Substances;

(d) Containing loose fill in depths exceeding 10 m;

(e) In areas with history of deep-seated ground movement;

(f) Close proximity to water or sewage tunnels; and

(g) Close proximity to shallow foundations.

(2) Hand-dug Piling may for example be adopted by the Contractor in the following situations where there are no unfavourable conditions:

(a) Steeply-sloping sites with pile depths less than 25 m in depth in soil;

(b) Sites with difficult access or insufficient working room where it may be impractical or unsafe to use mechanical plant; and

(c) Where noise, vibration or damage may be caused by driven or bored piling and which must be avoided.

(3) Hand-dug Piling shall:

(a) Be not less than 2 m diameter;

(b) Be not more than 25m deep; and

(c) Have continuous shaft lining.

(4) Access/Exit Facilities

The Contractor shall:

(a) Provide safe and efficient access, egress and emergency exit facilities in the shaft for workers;

(b) Provide vertical ladders, securely anchored to framework or shaft lining and complete with a ladder safety system;

(c) Provide a landing rest platform every 5 m, when the length of any ladder exceeds 10 m;

(d) Ensure that the upper end of vertical ladders projects at least 1m above the ground and any landing rest platforms;

(e) Provide appropriate and adequate pumps to remove all water from the base of the shafts; and

(f) Take measures to prevent any accidents involving workers with the spoil removal containers and any other equipment particularly throughout the bucket hoisting and descending operations.

(5) Ladder Safety System

(a) A ladder safety system shall be provided to eliminate the risk of injury to any worker falling off the ladder; and

(b) The ladder safety system shall comprise a carrier, safety sleeve, lanyard, connectors, and body harness and all workers shall be trained in its use.

(6) Communication and Signalling Measures

(a) Signals for delivering materials and equipment or discharging excavated materials to and down or from the shaft shall be determined in advance and all workers shall be trained in their use;

(b) Signals and evacuation methods during emergencies shall also be determined in advance and all workers shall be trained in their use with regular evacuation training; and

(c) Where considered necessary by the HSO handheld radios shall be provided to the Operation Leader working at the base of the shaft and a Spotter at the ground level for all communications.

(7) Environmental Measures

(a) Ensure a continuous, adequate and safe air supply to workers located at the bottom of the shaft;

(b) Provide monitoring equipment, set up alarms and evacuate workers if air quality deteriorates and keep records in accordance with JSSS 2.1. [*Work Environment*]; and

(c) Provide adequate temporary lighting.

(8) Measures before Commencing the Works

Check the condition of the excavated ground surface in the shaft and whether there is any abnormality in the shaft lining.

(9) Measures during Execution of the Works

(a) When workers are in the shaft, assign a Spotter at ground level and located within direct view at the upper edge of the shaft;

(b) Minimise the depth of each stage of excavation;

(c) Avoid introducing new teams of workers or changing over teams until each stage of excavation is completed and temporary support or shaft lining has been installed;

(d) Provide immediate temporary support for the excavated faces prior to casting the

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liner;

(e) Providing reinforcement to the concrete liner;

(f) Providing drainage to each stage of excavation with relief wells, sumps and pumping as appropriate;

(g) Stop the work and evacuate workers when abnormal water inflow occurs in the shaft and resume work only after taking countermeasures and confirming the safety of the Site and the effectiveness of the measures;

(h) Pay constant attention to any changes in soil types, properties, etc. and if any abnormality is identified at the excavated surface during work or in the shaft lining, immediately stop the work, evacuate workers and take appropriate remedial measures, resume the work only after confirming that there is no further risk; and

(i) Ensure nothing is dropped into the shaft that may injure workers.

8.2.7 Monitoring ~~Impact of Foundation Piling Works on Other Properties~~

The Contractor shall comply with the requirements JSSS 2.1.7 [*Monitoring and Records*].

CHAPTER 9: CONCRETE WORKS

9.1 GENERAL

9.1.1 Scope

(1) This Chapter specifies the safety requirements for concrete works which include:

(a) Cast-in place (poured or pumped) concrete;

(b) Reinforcement (reinforcing bar and fabric reinforcement);

(c) Formwork (including associated Falsework);

and which are hereinafter collectively referred to as “Concrete Works”.

(2) General safety requirements, covering for example Contractor’s Equipment including stone crushing plants and screening equipment, concrete batching plants, Temporary Works and other related matters are described in other Chapters of JSSS.

Additional particular requirements are contained in this Chapter.

9.1.2 Safety Plan and Instructions to Workers

Prepare a Safety Plan describing the safety requirements for Concrete Works and inform all workers engaged in the Concrete Works of the content and requirements. The Safety Plan shall pay due care to the workers’ health matters (e.g. back injury) in relation to handling of reinforcement, Formwork panels or other heavy items, and include necessary preventive measures (e.g. using appropriate Contractor’s Equipment, assigning sufficient number of workers).

9.2 PARTICULAR SAFETY MEASURES

The following safety requirements are additional to the general requirements described in other Chapters.

9.2.1 Safety Measures at Planning Stage

(1) The Contractor shall plan all Concrete Works so that they are executed in a safe and methodical manner.

(2) The Contractor shall plan the method of placing cast-in-place concrete and carry out the design and construction of Formwork and Falsework to take account of uneven and excessive impact force and different or asymmetrical loads, thicknesses and pressures in certain areas during concrete placement to avoid deformation beyond allowable tolerances specified in the Contract, any damage or collapse of Formwork and Falsework and show all details in the Method Statement and Safety Plan.

(3) The Contractor shall provide PPE such as rubber gloves, face masks and goggles to the workers when spraying concrete form release agents to prevent chemical injury, and where there is a possibility that release agent may splash on the third parties, take measures such as establishing exclusion zone with temporary barriers and locate Spotters to prevent those persons from entering the area.

9.2.2 Safety Measures for Placement

The Contractor shall:

(1) Designate concrete placement works (including all pumping and hoisting of concrete) as Dangerous Work, enclose the immediate working area with temporary signs and fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry*].

(2) Inspect all reinforcement, Formwork and Falsework before and during concrete placement. If any abnormality is discovered, stop the placement works and evacuate the

workers immediately, carry out repairs and reinspect before resuming.

(3) Place the concrete in accordance with the Method Statement and avoid uneven and excessive impact force and different or asymmetrical thicknesses and pressures in certain areas during concrete placement Additional materials shall be stored at the concrete placing site for use to reinforce Falsework in case of occurrence of their local deformation.

9.2.3 Safety Measures for Placement by Pumping

The Contractor shall take the following safety measures for delivery of cast-in-place concrete with the use of concrete pumps:

(1) Inspect the condition of concrete pump delivery pipes, end hoses and all connections, ensure that they are free from defects and blockage, check that all joints and connections are secure and free from leakage before and during concrete placement works.

(2) Ensure that all delivery pipes, end hoses and other system components are all correctly pressure rated and capable of withstanding the maximum pump pressure.

(3) Maintain a safe separation distance between the delivery pipe, end hose and boom and any existing Overhead Services as required by JSSS 3 [*Existing Underground, Concealed and Overhead Services*], Table 3.2.1: Safe Separation Distances.

(4) Maintain a safe separation distance from any obstructions (Contractor's Equipment, buildings, etc.) and avoid any risk of hitting or touching any obstructions with the pumping equipment, delivery pipes, end hoses or boom.

(5) Check the ground condition, ensure a firm, stable and horizontal working base at all times and position pumping equipment and ready-mixed concrete trucks at a safe distance from the edge of any excavations, drop or slope to protect against any slippage or fall of equipment and ready-mixed concrete trucks or collapse of ground.

(6) Fully extend outriggers and ensure stability of pumping equipment and ready-mixed concrete trucks at all times.

(7) Arrange proper communications and signals before starting the placement between workers, Spotters and operators of equipment and ready-mixed concrete trucks and ensure there is a Spotter at the point of placement.

(8) Never allow workers to stand between ready-mixed concrete trucks and pumps when ready-mixed concrete trucks are reversing.

(9) Ensure that workers are out of the path of the boom when moving the boom.

(10) If a blockage or clogging occurs inside the pipeline during the pour, stop pumping immediately and instruct workers to move to a safe position before attempting to remove the blockage or clogging. The pipeline shall be opened after releasing the pressure inside in accordance with the predetermined procedure.

(11) Ensure that hoppers and chutes are securely fixed and that workers are aware of the method of operation and safe use.

(12) Ensure that the delivery pipe and hose at the end of the concreting pump booms are securely connected so that they do not fall or become detached.

(13) Prohibit workers from working on the hopper screen of the concrete pump, remove obstructions and foreign materials in the hopper only after stopping the agitating blade and applying lockout/tagout procedures.

(14) Prohibit workers from entering in front of and below the outlet of concrete pump delivery pipes and end hoses to prevent workers being struck by pipes or flailing hoses.

9.2.4 Safety Measures for Ready-Mixed Concrete Trucks

The Contractor shall take the following measures for the ready-mixed concrete trucks in the transportation and delivery of cast-in-place concrete.

(1) Ensure that drivers are aware of and take due account of the heavy load and high centre of gravity of loaded ready-mixed concrete trucks during delivery and discharge to maintain safety and prevent overturning.

(2) Ensure that workers do not come into contact with and/or become entangled with the rotating drum and other moving parts of ready-mixed concrete trucks and that they are prevented from looking into the drum.

9.2.5 Safety Measures for Use of Concrete Buckets

The Contractor shall take the following measures when using concrete buckets for hoisting and placement of cast-in-place concrete:

(1) Comply with JSSS 5.2.5 [*General Safety Measures ~~for Hoisting~~ ~~Operations~~*] for selection of proper Hoisting Equipment and Rigging Equipment, arrangement of proper communication tools, signals and placement of Spotters.

コメントの追加 **[MJD162]:** Clause heading changed

(2) Ensure that the movable gate is locked before hoisting and is only operated by a skilled worker when it is opened for discharge.

(3) Take measures to stabilise the bucket during hoisting and prevent any uncontrolled swinging. Prohibit workers from pushing and pulling bracket except for minor adjustment of location of the bucket for discharging concrete.

(4) Prevent any persons or workers from entering the places below bucket.

(5) Discharge the concrete slowly and in a controlled manner to prevent the bucket from rebounding after discharge.

9.2.6 Safety Measures for Use of Concrete Vibrators

The Contractor shall take the following measures when using concrete vibrators for compacting of cast-in-place concrete:

(1) Take all necessary measures to prevent electric shock, complying with JSSS 4.3.12 [*Additional Requirements for Electric Powered Equipment*].

(2) To prevent vibration injury to workers, provide anti-vibration gloves and ensure that they are properly used.

9.3 REINFORCEMENT

9.3.1 Safety Measures at Planning Stage

The Contractor shall:

(1) Prepare a Safety Plan, Method Statement and fixing and placing drawings of reinforcement describing the method of cutting, bending and fixing and showing the types and positioning of supports, ties and bracing necessary to support and rigidly secure the reinforcement and to prevent any movement or collapse.

(2) Inform all relevant workers of the content of the Safety Plan, Method Statement and assembly drawings.

9.3.2 Safety Measures at Cutting, Bending, Transporting, Fixing and Placing Stage

The Contractor shall take the following measures during cutting, bending, transporting, fixing and placing of reinforcement:

(1) Cutting and Bending:

(a) Designate the work as Dangerous Work, enclose the immediate working area with

temporary signs and fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry*];

(b) Maintain the working area in a safe, organised, uncluttered and clean condition at all times, avoid excessive storage by retaining sufficient quantities of reinforcement for immediate use, locate equipment in known positions, prevent any fall or dropping of material, equipment and tools, remove offcuts to a separate area and ensure the area is safe and that the risk of workers falling or tripping is avoided; and

(c) Maintain stored reinforcement material in a safe and secure manner and prevent collapse or fall by providing adequate restraints.

(2) Transporting:

(a) Ensure that Scaffolding and any other temporary structures on which reinforcement is to be temporarily placed is capable of supporting the load, ensure that the load is distributed safely and that it does not cause any obstruction to the passage of other workers;

(b) Ensure that reinforcing bar is lifted and suspended horizontally to prevent any slippage during Hoisting Operations and also that it is bundled safely and securely tied to prevent any reinforcing bars from sliding out;

In principle, hoist the bundle of reinforcing bars, keeping them horizontal and maintaining the balance by using two rigging slings; and

(c) When transporting to the working location use flatbed trailers or truck, ensure that the trailer or truck is of sufficient length to avoid any overhang of reinforcing bars and provide appropriate warning signs and lighting on reinforcing bars if necessary in accordance with the local regulations to avoid collision with other vehicles, persons and workers.

(3) Fixing and Placing:

(a) Prepare proper temporary access to and support for fixing and placing reinforcement in position;

(b) Prevent any risk of fall and also any distortion or weakening of reinforcement by prohibiting workers from standing, walking or climbing on such reinforcement and where necessary provide safe temporary boarded walkways for workers use;

(c) Ensure that fixing and placing is in exact accordance with the fixing and placing drawings and that the correct types and positioning of supports, ties and bracing is maintained to properly support and rigidly secure the reinforcement and prevent undue movement or collapse;

(d) When there is any danger of reinforcement falling or collapsing during fixing and placing in wind and rain, stop the fixing and placing work. After conditions improve, inspect the reinforcement and take measures to correct any abnormality before continuing with fixing and placing;

(e) Prohibit working concurrently at levels where any other worker is working underneath in accordance with JSSS 2.6.7 [*Working Above or Below Other Persons*]; and

(f) Provide temporary protection caps to exposed ends of reinforcing bars to prevent injury to workers.

9.4 FORMWORK (INCLUDING FALSEWORK)

9.4.1 General

Any reference to "Formwork" in this Section shall also be deemed to include reference to the associated Falsework for that Formwork.

9.4.2 Safety Measures at Planning Stage

The Contractor shall:

(1) Design the Formwork and manage its provision, use and removal in accordance with JSSS 1.37 [*Design and Management of Temporary Works*] and the further requirements of JSSS 6.1 [*General Requirements of Temporary Works*].

(2) Prepare a Safety Plan, Method Statement and design drawings of Formwork describing the method of fabrication, assembly, erection and removal and showing details of all materials, components, types and positioning of supports, ties and bracing necessary to create a rigid and secure temporary support structure for the concrete, reinforcement and workers and to prevent any movement or collapse.

(3) Inform all relevant workers of the content of the Safety Plan, Method Statement and design drawings.

9.4.3 Safety Measures at Fabrication and Assembly Stage

The Contractor shall take the following measures during fabricating, transporting and assembling of Formwork:

(1) Designate the work as Dangerous Work, enclose the immediate working area with temporary signs and fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry*].

(2) Maintain the working area and storage area in a safe, organised, uncluttered and clean condition at all times, avoid excessive storage by retaining sufficient quantities of material for immediate use, locate equipment in predetermined places, prevent any fall or dropping of material, equipment and tools, remove offcuts to a designated area.

(3) Ensure that the Formwork is free from cracks, defects and deformation.

(4) Ensure that Scaffolding and any other temporary structures on which Formwork is to be temporarily placed is capable of supporting the load, that the load is distributed evenly and within the allowable stress of Formwork.

(5) During any Hoisting Operations, ensure that all necessary measures are taken to prevent Formwork being affected by wind and that any risk of collision and consequent injury and damage is avoided.

9.4.4 Safety Measures During Dismantling and Removal Stage

(1) Ensure that Formwork is only dismantled when so instructed or approved in writing by the HSO.

(2) After dismantling, stack Formwork panels horizontally to avoid overturning due to strong wind or applied loadings; and

(3) Any protruding nails, wires, projecting members and splinters shall be removed or bent flat to avoid injury to workers and other persons.

CHAPTER 10: DIVING WORKS

10.1 GENERAL

10.1.1 Scope

This Chapter specifies the safety requirements for Diving Operations which shall include Surface-Supplied Air Diving and SCUBA Diving and which are hereinafter collectively referred to as “Diving Works”.

Saturation diving and mixed-gas diving are not included.

10.1.2 Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Chapter or relevant to the subject of this Chapter and which are not fully covered by JSSS, the Contractor shall take necessary measures for Diving Works complying with OSHA 1910 Subpart T [Commercial Diving Operations] for Surface-Supplied Air Diving and SCUBA Diving (excluding saturation and mixed-gas diving).

10.2 SAFETY PLANS

10.2.1 General Requirements ~~for the Safety Plans for Diving Works~~

The Contractor shall prepare the following Safety Plans for the Diving Works in compliance with and in addition to the requirements of with JSSS 1.7 [*Contractor's Safety Plans*].

(1) Bid Stage Safety Plan for Diving Works.

(2) Baseline Safety Plan for Diving Works.

(3) Particular Safety Plans for Diving Works.

(4) Pre-dive Safety Plan for Diving Operations.

10.2.2 Bid Stage Safety Plan ~~for Diving Works~~

In compliance with JSSS 1.7.6 [*Bid Stage Safety Plan*], the Bid Stage Safety Plan for Diving Works shall include an outline plan indicating the Contractor's operational procedures for each diving mode to be used in the Works This shall be in sufficient detail to give an understanding of the Contractor's intentions regarding the diving safety procedures that the Contractor intends to implement.

10.2.3 Baseline Safety Plan ~~for Diving Works~~

(1) In compliance with JSSS 1.7.7 [*Baseline Safety Plan*], the Baseline Safety Plan for Diving Works shall be a development of the Bid Stage Safety Plan and shall include detailed safety procedures and standard checklists to apply to all Diving Operations, equipment procedures, and emergency procedures (at a minimum covering fire, equipment malfunction or failure, adverse environmental conditions and medical illness and injury).

~~(2) The HSO shall review the Baseline Safety Plan to determine if it is correct and compliant with the requirements of OSHA and JSSS.~~ The Contractor shall ensure that the Baseline Safety Plan shall be correct and compliant with the requirements of OSHA and JSSS.

(3) A copy of the Baseline Safety Plan together with a copy of the OSHA standard and the Contractor's policies for implementing the requirements of OSHA (from the Bid Stage Plan) shall be made available at the dive location to each Dive Team member and explained to the Dive Team by the HSO and DPIC.

10.2.4 Particular Safety Plans ~~for Diving Works~~

(1) In compliance with JSSS 1.7.8 [*Particular Safety Plans*], the Particular Safety Plans shall contain all further information specific to Diving Works not covered by the foregoing Bid Stage and Baseline Safety Plans together with all supplemental information obtained

コメントの追加 **[SS163]:** No. 69
JICA commented this proposal is tentatively accepted.
JICA will consult these plans with specialist company for diving works.
NK will leave them as they are.

コメントの追加 **[MJD164R163]:** No comment will await any future instructions.

コメントの追加 **[SS165R163]:** We will not do any in this Chapter and submit this Chapter with revision as commented.

コメントの追加 **[MJD166R163]:** We have changed headings as instructed

コメントの追加 **[SS167]:** 追加(69A)

コメントの追加 **[SS168]:** JICA commented (2) shall be deleted because it is strange for the HSO to review BSP.
NK will delete (2).

コメントの追加 **[MJD169R168]:** Please note that this is a requirement of OSHA D. 29 CFR 1910.420 *Safe practices manual*.
If this review by HSO (CSHO) is deleted this may not now be compliant with OSHA.

Please advise

コメントの追加 **[SS170R168]:** JICA commented because review of BSP may be made by the Engineer, so the HSO is not position to review. He should prepare and submit BSP to the Engineer.
Can we revise this as right to meet the requirement of OSHA?

コメントの追加 **[MJD171R168]:** I suggest that whilst the Engineer “may” review, the HSO must review. I have inserted your sentence (adding “the”) but I do not agree that it is correct, I suggest that it should be the HSO.

コメントの追加 **[SS172]:** 20. (70)

during pre-dive planning and assessment, as necessary to comply with the requirements of OSHA in particular OSHA 1910.421 [Pre-dive procedures] for all Diving Works.

(2) The Particular Safety Plans shall be prepared for the basis of the Pre-dive Safety Plan for each Diving Operation to be carried out in any one (1) day.

(3) ~~The Particular Safety Plans shall include the following for example, however, the plan be modified to be indicative for the use of the Pre-dive Safety Plan:~~ The Particular Safety Plans shall include the following example items which may be later modified by the Pre-dive Safety Plan:

(a) Safety procedures and checklists for each Diving Operation;

(b) Name of each Dive Team member, buddy diver assignments, individual work assignment and responsibility and confirmation from the DPIC that they each comply with all diving health and safety requirements and are therefore approved to work on the Diving Operation;

(c) The planned dive profile for each Diver showing their maximum bottom time and ascent rate with decompression stages and times, taking account of repetitive dives;

(d) Description of all diving equipment, diving gases and consumables, PPE, procedures for their use and signed checklists to confirm compliance;

(e) Description of the workboat and workboat facilities, together with information on the location of the workboat in relation to the dive site, and procedures for the use and operation of the workboat during Diving Operations, any surface hazards and any restriction in operation due to surface traffic conditions;

(f) Description of all other Contractor's Equipment, tools and consumables for the assigned work tasks, procedures for their use and checklists;

(g) The arrangements at the Site of the Diving Works for emergency recompression/decompression and the safe transport of any Diver for treatment;

(h) The climatic, river, lake, marine, natural and physical conditions that are likely to be encountered during any Diving Operation and the procedures for commencement, continuation or stopping of any Diving Operation following any change in these conditions in accordance with JSSS 10.3 [*Climatic, Marine, Natural and Physical Conditions*];

(i) Communication systems and procedures for communications:

(i) Between Divers;

(ii) Between Divers and the workboat; and

(iii) Between the work boat and the relevant authorities.

(j) Any further information and instructions to be given to the Divers, support assistants and other workers related with the Diving Operations and the working methods and safety measures.

(4) The Particular Safety Plan shall be prepared by the DPIC or another Diver that has the qualification, experience and capability deemed sufficient by the HSO.

(5) The Particular Safety Plan shall be internally reviewed and approved by the HSO, and submitted to the Engineer for his review..

(6) The content of the Particular Safety Plan shall be explained to all Dive Team members during the briefing by the HSO or DPIC in accordance with OSHA 1910.421(f) [Employee briefing].

(7) If considered necessary by either the HSO or DPIC, individual Dive Team members shall

コメントの追加 [SS173]: JICA asked if "of" is necessary before OSHA.

コメントの追加 [MJD174R173]: Yes, "of" is necessary. OSHA is defined as "the technical requirements of …." therefore it is correct.

コメントの追加 [SS175R173]: Confirmed.

コメントの追加 [SS176]: No. 70
JICA commented (3) cannot understandable, so request to change it. If this states the relation with Pre-dive plan, it should be modified, or delete it because there is stipulation in 10.2.5 (2).
NK: Please review JICA comment and modifythis sentence.

コメントの追加 [MJD177R176]: Suggest as follows:

The Particular Safety Plans shall include the following example items which may be later modified by the Pre-dive Safety Plan:

Please confirm

コメントの追加 [SS178R176]: Yes, we will replace them with your proposed sentence.

コメントの追加 [SS179]: JICA commented (4) and (5) should be modifies as requested in 1.7. The PSS is the document to be prepared by the HSO getting assistance of DPCI and divers and submitted for the Engineer's review.
NK: Please modify (4) and (5) following JICA's comment above.

コメントの追加 [MJD180R179]: For diving works, I suggest that this is different to JSSS 1.7 and cannot always be the case. This plan must be prepared by the DPIC or other designated, qualified and experienced expert diver which the HSO is not and neither is the Engineer. Most of this information will in any case already be included in the Baseline Safety Plan.

This is basically a requirement of OSHA. Please refer to "E. 29 CFR 1910.421 [*Pre-dive procedures]*. It could be reviewed by the HSO so that he is aware of it but it will generally not be changed by him. It can also be sent to the Engineer for his information if there is time JICA and it may be reviewed by him but probably without comment. As suggested before, the Engineer could be asked to witness the employee briefing just before each dive to ensure that all items are properly explained and that the Baseline Safety Plan and Particular Safety Plan are complied with. If required a suitable clause can be added after (6) as follows: below.

... [2]

コメントの追加 [SS181R179]: JICA does not want the HSO take actions of review and approval of PSP. I suggest to add "internally" and 2subimmted to the Engineer for his review" as left.

... [1]

コメントの追加 [MJD182R179]: No comment will change as requested

be given additional training and testing.

(8) A copy of the Particular Safety Plan shall be made available at the dive location to each Dive Team member.

10.2.5 Pre-dive Safety Plan for Diving Operations

The Contractor shall prepare a Pre-dive Safety Plan for each Diving Operation as follows:

(1) To contain information specific to the Diving Operation to be carried out in a day to secure safety of Diving Operation, in accordance with OSHA 1910.421 [Pre-dive procedures].

(2) To describe the items given in the above JSSS 10.2.4 (1) ~~(3)~~ specifically for the particular Diving Operation.

(3) To be used for briefing the Dive team.

(4) To be prepared by DPIC or another Diver that has qualification, experience and capability deemed sufficient by the HSO.

(5) To be submitted to the HSO by the day preceding the scheduled date of the Diving Operation for his review and approval.

(6) To be available at the dive location to each Dive Team member.

10.3 CLIMATIC, MARINE, NATURAL AND PHYSICAL CONDITIONS

10.3.1 General

(1) The Contractor shall compile relevant information from statistical records, recent and current forecasts of conditions which may be encountered in support of the Particular Safety Plan and shall establish criteria and controls for commencement, continuation or stopping of any Diving Operation due to such conditions.

(2) The Baseline Safety Plan shall describe how such criteria shall be applied and how such controls shall be implemented.

10.3.2 Information on Conditions ~~for Particular Safety Plans and Pre-dive Safety Plans~~

(1) Where necessary, the Contractor shall make exploratory dives to survey and establish all relevant conditions at the dive site such that all Pre-dive Safety Plans are based upon the best and most timely available information.

(2) Relevant information shall also be obtained by the Contractor from all available sources and shall include for example the following:

(a) Climatic information and forecasting at the diving location:

(i) Wind speed and direction;

(ii) Air temperature;

(iii) Surface visibility, fog, sea mist;

(iv) Likelihood and intensity of electrical storm; and

(v) Weather forecasting.

(b) Water/Marine Conditions:

(i) Sea state; wave height and direction;

(ii) Height and time of tides;

(iii) Water depths;

(iv) Water Temperatures;

コメントの追加 **[SS183]:** 21. (72)

コメントの追加 **[SS184]:** (1)is to be (3).

コメントの追加 **[MJD185R184]:** I think it is should remain as (1) as this requires full compliance with OSHA and (3) includes examples only.

Please advise

コメントの追加 **[SS186R184]:** We leave (1) as it is.

コメントの追加 **[SS187]:** 22. (73)

コメントの追加 **[SS188]:** No. 73
JICA requested to add the following sentence we discussed to 1.7.7(4).
NK agreed and added it.

1.7.7(4)
If, at any time, the Engineer gives notice to the Contractor that the Baseline Safety Plan fails (to the extent stated) to comply with the Contract or to be consistent with the Contractor's stated intentions, and that cannot be corrected by the issue of a Particular Safety Plan, the Contractor shall submit a revised Baseline Safety Plan to the Engineer in accordance with this Clause.

コメントの追加 **[MJD189R188]:** No comment will change but please advise if you want this to be added here also?

コメントの追加 **[SS190R188]:** Only specify at 1.7.7(4) and not here.

(v) Water currents, direction and speed;

(vi) Visibility at depths; and

(vii) Water level variation in rivers or lakes during flood periods.

(c) Physical Conditions:

(i) Underwater cables and pipes;

(ii) Wreckage and other artificial obstacles;

(iii) Geotechnical conditions affecting the work; and

(iv) UXO, Dangerous Goods and Hazardous Substances.

(d) Natural Conditions:

(i) Natural obstructions;

(ii) Coral reef or other water or marine life to be protected; and

(iii) Danger from wildlife and precautions to be taken.

(e) Surface Traffic:

(i) Surface traffic details, timings and restrictions, and

(ii) Danger, precautions and control of surface traffic.

(f) Diving Works Area:

(i) Demarcation of diving location; and

(ii) Limits of working area.

10.4 PERSONNEL FOR DIVING OPERATIONS

10.4.1 Qualification ~~of Diving Personnel~~

Qualification of the Dive Team members shall be in accordance with the specified OSHA requirements and shall for example include the following:

(1) Each Diver shall possess a valid commercial diving certification for the appropriate training level issued by an internationally recognised Diver competence assessment organisation which shall be approved by the HSO and Engineer.

(2) Each Dive Team member shall have the experience and training necessary to perform assigned tasks in a safe and healthful manner.

(3) Each Dive Team member shall have experience and training in the following:

(a) The use of tools, equipment and systems relevant to assigned tasks;

(b) Techniques of the assigned diving mode; and

(c) Diving Operations and emergency procedures.

(4) All Dive Team members shall be trained in CPR and first aid to a minimum standard of that recommended by the International Federation of Red Cross and Red Crescent Societies standard course or equivalent.

(5) Dive Team members who are exposed to or control the exposure of others to hyperbaric conditions shall be trained in diving-related physics and physiology.

(6) The qualifications of all Divers shall be checked and verified in accordance with the specified OSHA requirements.

10.4.2 Designated Person-in-Charge (DPIC)

(1) The Contractor shall assign a DPIC to each Diving Operation.

(2) The DPIC shall have experience in, and knowledge of all phases of the Diving Operation for which he is responsible.

(3) The DPIC shall be immediately responsible for the health and safety of the Dive Team.

(4) The DPIC shall be stationed at the dive location, and shall not be stationed at another dive location (i.e., the DPIC must be stationed at one (1) dive location and be responsible only for the Diving Operation at that location).

(5) The DPIC can be a Diver when qualified as a Diver, and when another Dive Team member is available at the dive location who is trained and capable of performing the necessary functions of the DPIC's duties when the DPIC is a Diver in the water.

(6) The qualifications of the DPIC shall be checked and verified in accordance with the specified OSHA requirements.

10.4.3 Duties of DPIC

The DPIC shall have the duties and responsibilities required by the content of this Chapter and the specified OSHA requirements, including the following:

(1) Manage the health and safety of the Dive Team.

(2) Manage and supervise the Diving Operation.

(3) Assign tasks to Dive Team members.

(4) Issue instructions for the Diving Operation to the Dive Team.

(5) Issue instructions to temporarily stop work when the DPIC considers that it is not safe to continue.

(6) Support the HSO with the health and safety management of the Diving Operations.

(7) Ensure that all members of the Dive Team keep records.

(8) Collect records, check, approve and submit to HSO.

10.4.4 Diver Assignments

(1) Each Dive Team member shall be assigned tasks commensurate to the persons experience and training, except that limited additional tasks may be assigned to a Diver undergoing training provided that these tasks are performed under the direct supervision of an experienced Dive Team member.

(2) The HSO shall not permit a Dive Team member to be exposed to hyperbaric conditions against the member's will, except when necessary to complete decompression or treatment procedures.

(3) The HSO shall not permit a Dive Team member to dive or be otherwise exposed to hyperbaric conditions for the duration of any temporary physical impairment or condition which is likely to affect adversely the safety or health of a Dive Team member.

10.4.5 Assistants and Duties ~~of Dive Team~~

The Contractor shall appoint such Divers and support assistants within each Dive Team as are considered necessary by the DPIC for the Dive Team to discharge its duties in a safe and competent manner.

All Dive Team support assistants shall have the duties and responsibilities required by the content of this Chapter and the specified OSHA requirements, including the following:

(1) Operate the air compressors.

(2) Control the valve for the surface supply of breathing air.

(3) Communicate with the Diver so that the Diver descends and ascends properly.

(4) Communicate to supply the air to the Diver properly between the assistants in charge to control the valve and to communicate with the Diver.

(5) Inform the Diver immediately when there is any risk due to a failure of air supply, weather change, sea condition changes, operations of other vessels and potential hazards.

(6) Inspect the connection between the helmet and the breastplate of the Diver before the start of Diving Operations when using a diving helmet.

(7) Coordinate the position of the workboat and avoid any conflict with the Diver.

(8) Ensure the safety of the Diver by maintaining communication with voice or video communication device.

(9) Ensure the safety of the Diver by observing the air bubble of breathing of the Diver.

10.4.6 Health Checks

(1) In addition to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*] and in compliance with the OSHA requirement for the Contractor to make himself fully aware, the Contractor shall carry out particular health checks on all Divers to ascertain that they are medically and physically fit to perform their duties.

(2) Such checks shall include for example checks for the existence of any illness or any deficiency in:

(a) The respiratory system, cardiovascular system, nervous system, musculoskeletal system, ear, nose and throat, and endocrine system;

(b) Vision;

(c) Dental health; and

(d) Any other health conditions and disease which may affect the Diving Operation.

(3) Any Diver that does not pass the above checks shall not be allowed to dive until the condition has improved and after further checks are successful.

(4) Additionally, and in accordance with the OSHA standard:

(a) The DPIC shall inquire into each Diver's health prior to each Diving Operation; and

(b) The Contractor shall advise all Divers of the procedures for reporting physical problems or adverse physiological effects during and after diving.

(5) Consistent with the above and the OSHA provisions, the Contractor shall not require any Diver to dive or otherwise work under hyperbaric conditions when the Diver:

(a) Has any ailment that is likely to adversely affect the safety or health of any member of the Dive Team;

(b) Lacks the necessary training or education; or

(c) Refuses to work under such hyperbaric conditions.

(6) Should a Diver request termination during a dive, the Contractor shall, if necessary, prolong the Diver's exposure to hyperbaric conditions to complete decompression or medical recompression treatment to avoid serious physical harm or death to the Diver.

10.5 DIVING EQUIPMENT, TOOLS, FACILITIES AND WORKBOATS,

コメントの追加 [MJD191]:
This comma requires to be deleted

コメントの追加 [SS192R191]: Confirmed.

10.5.1 Diving Equipment

(1) The Contractor shall provide workboats, diving equipment, work tools and other facilities fully in compliance with OSHA 1910.430 [Equipment].

(2) Workboats, diving equipment, work tools and other facilities are defined as Contractor's

Equipment and shall therefore comply with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

10.5.2 Diving Workboats

(1) Workboats shall be:

(a) Robust and seaworthy;

(b) Stable in operation;

(c) Suitable size, draft and shape to suit the Diving Operations;

(d) Equipped with marine band radio and with a shore station that is attended at all time that the workboat is in operation and can provide emergency support if required;

(e) Equipped with marine lighting;

(f) Equipped with life jackets, first aid sets, distress flares and other necessary emergency equipment;

(g) Provided with secure and robust ladders or platforms for Divers to easily enter or exit the water; and

(h) Provided with a roof and cabin to protect the crew and Dive Team from heat, cold and rain.

(2) Workboats shall be provided with the means to assist an injured Diver from the water (such as an in-water platform, small boat or basket stretcher) or into a diving bell. The Contractor shall ensure that there are sufficient Dive Team members or additional Contractor's Personnel to assist.

(3) Unless otherwise specified, the Contractor shall provide a separate small boat for rescue at the workboat, suitable for assisting and recovering Divers who are in difficulty or have drifted away from position.

10.5.3 Inspections and Maintenance

The Contractor shall comply with all requirements of JSSS 4.2 [*Inspection, Maintenance and Repair*] and ensure that workboats, equipment, tools and facilities are inspected, fully maintained and operational when mobilised to the Site and thereafter are inspected, maintained and repaired before the commencement of the first and of all subsequent days of operation.

The Contractor shall keep the inspection and working records and make them available for the inspection of the Engineer upon request.

The Contractor shall prohibit use of workboats, equipment, tools and facilities until the requirements of JSSS 4.2 [*Inspection, Maintenance and Repair*] are fully complied with.

10.6 PARTICULAR SAFETY MEASURES

10.6.1 Measures before Diving Operations

The Contractor shall take the following measures before commencement of any Diving Operation:

(1) Dive Teams

(a) Discuss the diving methods and safety procedures;

(b) Discuss the work methods and procedures and the assignment and placing of the Divers and work task sharing;

(c) Advise of the diving timetable and required compliance;

(d) Inform of the climatic, water, natural and physical conditions;

(e) Conduct the health check; and

(f) Check that support assistants and crew on the workboat are wearing life jackets.

(2) Equipment, work tools and other facilities

Inspect the equipment, work tools and other facilities, prohibit use when any defect or non-compliance is found, reinspect when a repair or replacement is completed.

(3) Diving workboats

(a) Inspect workboats and rescue boats;

(b) Display the international maritime diving signal flag and display signs and lights as necessary on the workboat;

(c) Securely anchor the workboat to the water or seabed; and

(d) Stop the engine during Diving Operation.

(4) Diving Operation site

(a) Provide signs including red flags, buoys and notices to demarcate the Diving Operation site; and

(b) Install a downline with depth indication marks at 3m intervals from the workboat to the sea bed at the Diving Operation site to act as a guideline for descending or ascending and as a guide for transfer of tools and equipment.

(5) Diving Equipment

(a) Check the diving equipment to be carried by the Divers:

(i) For Surface-Supplied Air Diving, check for example: air connections, compressed air supply, weight belt, voice or video, communication device, torch, watch, water depth gauge, knife and the like; and

(ii) For SCUBA Diving, check for example: first stage, second stage and spare regulators, available air volume, secondary air supply, buoyancy control device, weight belt, tank straps, air valve, communication device, watch, water depth gauge, knife and the like.

(b) Check that the downline is secure and tight;

(c) Ensure as a minimum, that a two-way voice or video communication link is set up and working at least between a single selected working Diver and the DPIC at the surface control point; and

If any defect is identified by the above checks, prohibit the Diving Operation from commencing.

10.6.2 Measures during Diving Operations

The Contractor shall take the following safety measures during each Diving Operation:

(1) A designated member (or members) of the workboat crew shall assist the DPIC by observing the Diving Operations of all Divers throughout all Diving Operation and inform the DPIC when Divers are carried away by currents and their location when they surface after their dive ascent.

(2) A designated member (or members) of the workboat crew on the workboat shall also keep a look-out for any other vessels that may approach the Diving Operation site. The designated member(s) shall alert any other vessels related or not related with the Diving Operations with requisite warning blasts from the workboat's siren, loudhailer, flares and/or flags, etc. in order to prevent them from approaching and entering the Diving Operation site.

(3) Measures for the Divers

(a) Prohibit the Dive Team from commencing any Diving Operation without the DPIC and the complete Dive Team present, ready and equipped;

(b) Ensure that the Divers use the ladders for entering and exiting the water for the Diving Operation;

(c) Ensure that Divers use the downline for descending and ascending;

(d) Maintain constant voice or video communication through the provided link; and

(e) Ensure that the Divers constantly communicate with each other by hand signals and slate messaging.

(4) Ensure the DPIC or a Dive Team member at the surface, constantly observe the weather and water conditions and if there is any change that meets the work stop criteria, or if the conditions are considered to be otherwise unsafe by the DPIC, immediately stop the Diving Operation and ensure that the Divers are removed from the water in a safe and controlled manner.

(5) Safety and Health Management of Diving Operations

(a) Manage the Diving Works for each Diver so the Diver takes sufficient and safe surface time between dives to maintain his health and wellbeing;

(b) Ensure that sufficient numbers of Divers and standby Divers are available to ensure that Divers are not in the water for excessive periods;

(c) Ensure that each Diver keeps an accurate record of his dive profile for every dive, showing overall time, bottom time and depth, decompression times and depths and that these are summarised by the Diver with a record of the number of dives on a daily, weekly and monthly basis;

(d) Ensure that the DPIC reviews and approves such records and that same are submitted by the DPIC to the HSO for the HSO's review and countersignature and made available for the Engineer's inspection; and

(e) Unless otherwise required by the Law of the Country, the Contractor shall retain all dive records for the periods specified in OSHA 1910.440 [Record keeping requirements].

10.7 DIVING ACCIDENT RESPONSE PLAN

10.7.1 General

The Contractor shall prepare an Accident Response Plan for the Diving Works in accordance with JSSS 1.24 [*Accident Response Plan*].

10.7.2 Provisions by the Contractor

The Contractor shall comply with following requirements prior to Diving Works.

(1) In accordance with the requirements of OSHA 1910.423(c) [*Recompression facility*], the Contractor shall make a recompression/decompression chamber available at the dive location to treat decompression sickness.

(2) The Contractor shall provide any additional recompression/decompression equipment and medical support facilities as necessary to ensure the health and safety of any members of the Dive Team that may require treatment for decompression sickness and other dive related conditions.

(3) The Contractor shall provide rescue and safety equipment, an emergency aid contact list, a first aid kit and supplies. The rescue and safety equipment including decompression facilities, first aid kit and supplies provided at the dive location shall be appropriate for

the Diving Works and approved by a physician. When used in a decompression chamber or bell, the first aid kit and any medication shall be suitable for use under hyperbaric conditions.

(4) The HSO and DPIC shall ensure that the recompression/decompression chamber, any additional recompression/decompression equipment, medical support facilities, rescue and safety equipment, emergency aid list and first aid kit are complete and available at the dive location.

ページ 160: [1] コメントの追加 [SS181R179]　　SS　　2020/09/16 14:45:00

JICA does not want the HSO take actions of review and approval of PSP. I suggest to add “internally” and 2subimmted to the Engineer for his review” as left.

The addition of new stipulation will make JICA confused, so I want to limit minor revision.

ページ 160: [2] コメントの追加 [MJD180R179]　Mike Durrant　　2020/09/15 13:28:00

For diving works, I suggest that this is different to JSSS 1.7 and cannot always be the case. This plan must be prepared by the DPIC or other designated, qualified and experienced expert diver which the HSO is not and neither is the Engineer. Most of this information will in any case already be included in the Baseline Safety Plan.

This is basically a requirement of OSHA. Please refer to “E. 29 CFR 1910.421 [*Pre-dive procedures]*. It could be reviewed by the HSO so that he is aware of it but it will generally not be changed by him. It can also be sent to the Engineer for his information if there is time JICA and it may be reviewed by him but probably without comment. As suggested before, the Engineer could be asked to witness the employee briefing just before each dive to ensure that all items are properly explained and that the Baseline Safety Plan and Particular Safety Plan are complied with. If required a suitable clause can be added after (6) as follows:
below.

The HSO and Engineer shall be invited to attend and witness the employee briefings immediately before each dive to ensure that all aspects of the Baseline and Particular Safety Plans have been properly explained and understood and all other requirements have been complied with.

Please advise

JSSS 最終案のための JICA コメント・NK 対応説明一覧表(2) (9/11 会議後の JSSS 変更報告)

20200917

No.	前表 NO	JSSS Clauses	JICA Comments (20200722) Mandatory to change, for discussion/inquiry, – NK	NK Explanation/Actions	Proposal for Final JSSS	JICA コメント (9/11 会議での結論)	NK の対応と説明
1.				JSSS の節のタイトル変更の提案 (9/16) NK は節のタイトルの統一のために、現在の節のタイトルを、下記のように簡略化することを提案しました。 6.1.1 Design and Provision of Temporary Works ~~Generally~~ 6.1.3 Monitoring the Performance ~~of Temporary Works~~ 6.3.6 Monitoring ~~Water Level and Other conditions~~ 6.5.3 Notices to be Displayed ~~on scaffolds~~ 6.5.4 Scaffolding Assembly, Erection, Alteration and Dismantling ~~Generally~~ 6.5.5 Inspection and Maintenance ~~of Scaffolding~~ 6.6.2 Design and Management ~~Generally~~ 6.7.4 Method Statement ~~for Temporary Electrical Installations~~		JICA は変更に同意した。また、次を含め他の章も簡略化することを依頼した。 5.2.4 Inspection ~~of Hoisting Equipment and Rigging Equipment~~ 5.2.5 General Safety Measures ~~for Hoisting Operations~~ 5.4.2 Further Safety Requirements for Rigging	→簡略化しました。現在、変更した節名の統一をチェック中です。
2.	2	1.2.2 (2)	(2) References to “Laws of the Country” shall include all safety standards under such Laws and shall also include references to Laws of any other jurisdiction ~~that may be stated in the Contract Data~~. (JC3 and JC4). JC3: GC1.1.6.5 では Contract Data に記載するような立て付けにはなっていない。PSS に記載するようにすべき。 GC 1.1.6.5 does not specify this in the Contract Data. It should be mentioned on the PSS.JC4: deleted.	貴コメントに関し、下記の GC 1.4 では、any other jurisdiction は Contract Data と規定しています。JSSS の規定から that may be stated in the Contract Data を削除した場合、any other jurisdiction が自動的に JSSS に適用されることになります。そのため、原案の jurisdiction that may be stated in the Contract Data に戻すことを提案致します。	(2)を原案に戻し、Contract Data を規定することを提案します。	(岡本)GC の 1.4 条は Governing Law についての記載で”the law of the country or other jurisdiction stated in the Contract Data” 当該国以外の法律を Governing Law(Applicable law)とする場合には CD に記載することを規定している。ここでは JSSS で参照する law なので Governing law とは異なる。 (伊藤)別紙参照 →(2) 丸ごと削除する。	→(2)を削除しました。
3.	3	1.2.2 (6)	–	発注者が PPE を保有していない場合やハーネス等の PPE の発注者やエンジニアへ提供する必要がある場合があるため、請負者が要員及び関係者へ提供すべき安全管理役務や設備に下記のように PPE を追加しました。 (7) …the same services and facilities (including for example healthcare…provision of PPE, records,…	(6)に PEE を追加することを提案します。	PPE を無条件に Employer’s Personnel に提供するのは反対。入れるべきではない。 →PPE の追加部分を削除して前回案に戻す。	→PPE の追加部分を削除して前回案に戻しました。
4.	8	1.9.5 (1)	(1) The Engineer ~~may~~ reviews the Method Statements and ~~may~~ gives (JC26) notice of non-compliance to the Contractor… JC26: revised.	エンジニアの Method Statement のレビューに関し、貴機構と議論を重ねました結果として、原案は”may review”と規定しております。下記で説明しておりますが、1.7.9 (3)(a)で The Engineer may review the Safety Plans と規定しています。同様に、Method Statement のレビューに関しましても、コメントの”may”の削除ではなく、原案の”may review ”を提案致します。 NK: This “may” is most important and essential part in JSSS as seriously discussed between JICA and NK. 1.7.9 (3) specifies (a) The Engineer may review the Safety Plans and may give notice 1.9.4 (1) shall be same as 1.7.9. MD: I agree with NK comment. As we have discussed before, the use of “may” is intentional and an important requirement. It is optional and review and response should remain at the discretion of the Engineer, similar for example to programmes. See also FIDIC 2017 Clause 4.9.1 Quality Management System where “may is also used. Preparation of method statements under GC 4.1 should remain as a general obligation of the Contractor (as and when requested by the Engineer) with no stipulated requirements for review or response by the Engineer, hence “may”. NK2: NK request to use “may”.	原案の”may”を規定することを提案します。	2017 年版 8.3 では Programme については”shall Review… may give a Notice”となっておりそれに合わせてください。 なお、Engineer may review という表現が 4 か所出てきます。 1.7.9(3)(a) The Engineer may review the Safety Plans and may give notice of non-compliance…. 1.9.5 (1) The Engineer may review the Method Statements and may give notice of non-compliance… ….（問題になっている箇所） 1.14.1 (3) The Engineer may review the Contractor’s proposal and may give notice of non-compliance……..（事故等により工事が一時中断し、再開に向けた手続きを論じている箇所） 1.37.6 The Engineer may review Temporary Works design….. この内、TW にかかる 1.37 はよいとして、他の三か所に関しては The Engineer reviews and may give notice…又は After reviewing the Safety Plans (Method Statements や Contractor’s proposal), the Engineer may give notice…と続けることとしてください。 これは安全を重視する JICA の姿勢の表れと理解してください。またその見地からは、特に 1.14 のような事項についてまで may がついていることには強い違和感を覚えます。	→1.14.1（3）のみ The Engineer shall review として変更しました。他は The Engineer may review …and may give notice…と原案とおりとしました。 質問のありました may… and may…の使用については特に問題だとの回答はありませんでした。

						→1.14.1(3)のみ The Engineer shall review として、他は The Engineer reviews and may give notice…とする。(基本は may、工事再開といたイシューの場合は shall にする) 会議後修正→1.14.1(3)のみ The Engineer shall review として、他は The Engineer may review and may give notice…とする。(基本は may、工事再開の場合は shall にする)	
5.	18	1.24.4	1.24.4 The Contractor shall provide the following medical and first aid facilities on the Site: JC: added.	必要な医療サービスや施設の提供は、現場内が無理な場合は現場外でも可能と考えます。そのため、on the Site の追記しないことを提案致します。 MD: I think it is not necessary and maybe not correct to add "on the Site" The Contractor shall provide such facilities off the Site if there is no room on Site, for example on land which he has arranged himself. The important thig is that the facilities are provided	左記の理由で追加しないことを提案します。	1.24.4(1)~(7)に列挙されているものについては当然サイトの中に配置されているべきものと考えます(よって on the Site を復活)。なお、JSSS1.2.2(5)もご参照ください。	→on the Site を復活しました。
6.	20	1.24.8	to perform Cardiopulmonary Resuscitation (CPR) and also to operate an Automatic External Defibrillator (AED) in accordance with the requirements of JSSS 2.9 [PPE and First Aid]. (JC69) JC69: added.	Annex A1.1.3 abbreviation に、CPR、AED は定義されています。そのため、原文の通りと致します。	左記の理由で原文通りと致します。	JICA の修正案通りとして下さい。 CPR 等の略語が最初に使用される場合は省略せずにフルで記述をすることが望ましいからです。	→ICA の修正案通り用語のフルスペルを記載しました。
7.	30	2.1.4 & 2.5.1	with the technical requirements specified in OSHA Standard Part 1926, Subpart E "Personal Protective and Life Saving Equipment", and Subpart M—"Fall Protection" ~~of "Part 1926—Safety and Health Regulations for Construction"~~ and as follows:– (JC129) JC129: deleted and modified.	OSHA の参照の方法を、次のように規定することを提案致します。 OSHA 1926 Subpart F [Xxx] OSHA 1926.152 [Xxx] OSHA 1910 Subpart T [Commercial Diving…] OSHA 1910.423I [Recompression facility] MD stated following JICA comment on later JSSS 2.5.1 it is apparent that there are inconsistencies in the numerous references to OSHA. As coordinated with NK, we have now simplified all reference to OSHA and made them consistent following the following convention: Refer also to change in the definition in Annex 1.1 & 2.5.1 also. There is also no need to refer to "technical requirements" as these are referred to in JSSS 1.4.5 (4).We have edited this throughout JSSS.	OSHA の参照の方法を左記のように変更し、統一致しました。	2.5.1(1)(e)the erection of tanks and communication and broadcast towers in Subpart E §1926.105 (Safety Nets)が削除されている。何故？ →理由を確認いただいたうえ、復活すべき場合は復活。復活しない場合は JICA で理由を確認。	→OSHA1926.105 (Safety Nets)の規定内容は 6 項目です。その内容は、JSSS 2.5.16 Safety Nets (1) to (6)に同じ内容を規定しています。そのため、2.5.1 では OSHA1926.105 を規定していません。 上記の理由で、2.5.1 に追記はしないことに致します。
8.	32	2.1.4 (3)(d)	(b) The Contractor shall monitor all workers whose noise exposure is equivalent to or greater than a noise exposure received in eight (8) hours where the noise level is constantly 90 dBA. The exposure measurement must include all continuous, intermittent, and impulsive noise within an 80 dBA to 130 dBA range and must be taken during a typical work situation. The Contractor shall choose the monitoring method that best suits each individual situation. (JC250) JC250: 音量のレベルと、サイト内で規制をかけるということについては、参照文献を確認させてください。dB の表現（dBA とするか否か）についてもそれに合わせて確認願います。 Please submit reference documents for JIICA's confirmation. Please check which of dB or dBA shall be specified.	OSHA の下記の規定に基づき(b)を、90dB を 85dB へ変更し、ｄBA はｄB に戻しました。 **§1910.95 Occupational noise exposure.** (b)(2) TABLE G-16—PERMISSIBLE NOISE EXPOSURES Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level. (d) *Monitoring.* (1) When information indicates that any employee's exposure may equal or exceed an 8-hour time-weighted average of 85 decibels, the employer shall develop and implement a monitoring program. (2)(i) All continuous, intermittent and impulsive sound levels from 80 decibels to 130 decibels shall be integrated into the noise measurements.	左記のように変更及び原案に戻しました。	別紙参照(140 は dBC、それ以外は dBA に修正)	→140 は dBC、それ以外は dBA に修正しました
9.	33	2.1.7 (1)	(1) …regularly ~~throughout the Time for~~	モニタリングの期間は、下記の理由で原案を提案致します。	左記の理由で、原案を	これについては強い確信をもって until the Taking-Over Certificate is issued であるべきです。理由は別紙を参照してく	→コメントに従い、次の同じ内容の代案で変更しました。

			~~Completion of the Works.~~ until the Taking-Over Certificate is issued for the entire Works. (JC114A) JC114A: revised.	Taking-Over Certificate（引渡し証明書）は、部分引渡しも含むため下記のように引き渡された部分のモニタリングはできないことになります。そのため through Time for Completion of the Works（完成期限内）を提案します。 MD stated this change is not correct; the original wording is correct. The Contractor has no such obligation (or right or need) to access any Sections of the Works which have been completed and taken over by the Employer. Similarly, there is no such right to access any part of the Permanent Works that have been taken over, occupied or used by the Employer.	提案します。	ださい。 for the entire Works の部分が問題なのであれば、until the Taking-Over Certificate is issued for the entire Works or any relevant part of the Works というような言い方では如何でしょうか？ご検討下さい。 →別紙	“until completion and taking over under GC 10 [Employer’s Taking Over” この変更に同意されるか確認をお願いします。
10.	34	2.1.7 (8) (f)	(f) Other parts of the Works required to evidence the Contractor’s compliance with the ~~Contract~~ Safety Plan; and	Safety Plan より Contract の方が包括的であり、原案の Contract を提案します。 MD: Contract is better as it is more inclusive.	左記の理由で、原案を提案します。	Contract とかくと(g)との区別が良く分からなくなります。なので、f と g を統合して、other part of the Works which may be specified in the Contract or the Safety Plan とするのはいかがでしょうか。	→(f)と(g)を削除し、(f)としてコメント案に変更しました。
11.	38	2.2.1 (5)	(5) to prevent alcohol and drugs from being brought onto the Site. (JC120) JC120: modified and added.	英語の使用上の観点から原案を提案します。 MD stated the addition of “from” is not grammatically correct.	左記の理由で、原案を提案します。	（伊藤）Cambridge Dictionary says “prevent something from XXing”. https://dictionary.cambridge.org/dictionary/english/prevent We are informed, however, that “from” is often omitted in U.K.　Well, let’s omit it. （大場）辞書をよく読むと「英国では”from”を省略しがち」とある。 →他の箇所と比較をして統一する	→JSSS での使用方法を調べましたところ、”from”がある場合とない場合の両方が多くの規定文で使われています。 そのため、両方の使用方法を可と考えまして、原案とおりとし、変更は行いませんでした。
12.	40	2.5.5 (3)	(1) Top-rails shall be designed to withstand 90 kgf. of horizontal force and mid-rails 70 kgf. of horizontal force and sufficient uprights shall be provided to sustain these forces.	重力単位系表示の kgf の規定から、国際単位系(SI)の N への変更を提案致します。 90kgf=883N、70kgf=686N	左記のとおり、SI 単位への変更を提案します。	端数で覚えにくいから括弧書きで両方示してはどうか？ 90kgf(approx.880N), 70kgf(approx.690N) 場所によって重力加速度が異なるため（1%くらいずれるケースが想定されます）、丸めた数字にするのがベターです。 →重力単位を先に書く。	→重力単位を先に書き、カッコ内に SI 単位を丸めて記載しました。
13.	42	2.7.5 (1) to (9)	(1) The Contractor shall follow the recommendations of OSHA as described in their Fact Sheet [refer to https://www.osha.gov/Publications/OSHA3863.pdf] (JC144) JC144: web のリンクを張られている箇所がここを含めて 2 か所のみ（もう一つは 2.9.1（8））あるのですが、こういうやり方でなければ引用できないのであれば残す、そうでなけれ別の引用方法を考えることとしてください。	OSHA の規定の要点を下記のように新規に追記しました。 (1) The Contractor should recognise lightning as an occupational hazard and take precautions to prevent exposure of all Contractor’s Personnel thereto. (2) to (9). MD stated please refer to the redrafting above to incorporate the main points from the OSHA recommendation.	左記の通り、変更、追記しました。	別紙を参照願います。 2.7.5 (9) (b) on cranes はどのような作業を意味するか知りたい。	→別紙の記載のとおりに修文しました。 →on cranes はクレーンのジブ上での修理作業等と説明あり、また次のような文章への変更がありました。 (b)Work ~~on or by~~ with, on or in the vicinity of cranes
14.	44	2.9.1 (8)	(8) Respiratory Protection Equipment (RPE) Selection and use of RPE shall be in accordance with HSE publication HSG53 (Fourth edition, published 2013), (https://www.hse.gov.uk/pubns/priced/hsg53.pdf) (JC153), RPE must be both adequate and suitable, whereby: JC153 same comment to 2.7.5. (JC144) JC144: web のリンクを張られている箇所がここを含めて 2 か所のみ（もう一つは 2.9.1（8））あるのですが、こういうやり方でなければ引用できないのであれば残す、そうでなけれ別の引用方法を考えることとしてください。 There are two locations in JSSS which refer to website (another is 2.9.1 (8)). If it is essential/avoidable to specify requirements by method of referring to the websites, they will be left as they are, if not please propose another	HSE の要点を追記し、次のように変更しました。 (8) RPE shall protect workers’ airways, lungs and related bodily systems against damage and injury from Harmful Substances or from oxygen-deficient atmospheres when other controls are either not possible or insufficient on their own. RPE shall be selected with due consideration of: (a) the Hazardous Substance(s) and the concentration in the air (exposure); (b) the form of the substance in the air (e.g. gas, particle, vapour); (c) and (d) … RPE shall be: (a) Correct for the Hazardous Substance such that it reduces exposure to the level required to protect the wearer’s health; and (b) Correct for the wearer, task and environment, such that the wearer can work freely and without additional risks due to the RPE.	左記の通り、変更致します。	追加いただいた文の最後に As for details, refer to HSE publication HSG53 (Fourth edition, published 2013)と追記願います。	→コメントとおり、最後に追記しました。

			method to refer to.	MD stated refer to our notes under JSSS 2.7.5. I would prefer to refer to the HSE Guide as it is very comprehensive, however the above simple redrafting incorporates some of the main points from the HSE Guide together with the existing reference to ANSI Z88.2-2015 in Table 2.9.5 below, should be sufficient but please review and advise if there are any further requirements.			
15.	48	4.3.9 (1)	the Contractor on ~~on~~ until completion and taking over of the Works. JC: changed.	英語の使用上の観点から“on or before”へ変更致します。	左記のように変更致します。	コンクリートプラントなどはコンクリート工事が終了すれば解体するので taking over of the Works を待つ必要がない。 修正された案で taking over まで待つ必要がないということで解釈できるのであればそのままでも結構です。	→MD 氏から Yes, it can be at any time before taking-over if possible, i.e. as soon as use is finished.との回答を得ました。 そのため、変更無しとしました。
16.	50	4.7.1 (3)	(3) Unless otherwise specified in the Contract, all such tanks, foundations, support and containment structures, paved surfaces, fencing, screens and associated facilities shall be demolished, ~~and~~ removed and disposed of in a safe~~ly~~ and ~~in an~~ environmentally acceptable manner by the Contractor ~~on~~ until (JC192) completion and taking over of the Works. All areas shall be backfilled, restored to a safe and suitable condition, cleaned and landscaped, all to the approval of the Engineer. JC192: revised.	英語の使用上の観点から原案の“on”を提案します(他の部分は MD の変更です。) MD stated “on” is correct.	左記の理由で、原案とおりと致します。	48 番をご参照ください。修正された案で taking over まで待つ必要がないということで解釈できるのであればそのままでも結構です。	→同上ですが、MD 氏は文章不足に気づき下記のように変更しました。 “on” → “on or before”
17.	55	5.2.5 (14) (c)	-	重力単位系表示の kgf の規定から、国際単位系(SI)の N への変更を次のように提案致します。(500kgf=4,903N) The assumed load (i.e. 1.3 times of total weight of gondola and workers on board plus ~~500 kgf~~ 4,903N) shall not exceed	左記のとおり、SI 単位への変更を提案します。	40 と同様。端数で覚えにくいから括弧書きで両方示してください。 500kgf(approx.4,900N)	→コメントとおりに変更しました。 また、数字が多くなるため、1000N は kN へ変更しました。
18.	60	6.4.4	JC222: 6.4.4 に出てくる ladders は全て potable ladders にした方がよいのではないでしょうか？ご検討下さい。 Please check if all “ladders” shall be replaced with “portable ladders”	原案では移動はしごの定義が無いため、JSSS で使用するはしごは移動はしごであること、固定はしごは別であることを、下記の斜文字のように追加で記述することを提案致します。 NK: I think they are better to be replaced. To MD, how do you think? MD: Whilst we do not use ANSI or OSHA as a reference standard for ladders, please note that: 1) ANSI standard A14. 2-1990 defines a “**portable ladder”** as "a “**ladder”** that can readily be moved or carried, usually consisting of side rails joined at intervals by step, rungs, cleats, or rear braces." If they are fixed “**ladders”** they are required to have fall protection at a length of 24 feet. 2) OSHA 29 CFR 1910.21(e)(2) defines “fixed ladders as "a ladder permanently attached to a structure, building, or equipment." Portable ladders are not defined in the standard, but by inference, a portable ladder would be any ladder not fitting the definition of a fixed ladder. 3) The ANSI standard A14.2-1990 defines a portable ladder as "a ladder that can readily be moved or carried, usually consisting of side rails joined at intervals by step, rungs, cleats, or rear braces." There is no reference standard in JSSS for ladders and the use of “portable” is therefore not prescribed. Maybe better to include for example the following clause here and merely refer in all other places merely to “ladders”: *For the purposes of interpretation and unless otherwise stated in JSSS the word “ladders” shall be deemed to mean portable ladders, namely those that can be easily moved or carried even if temporarily restrained and that are not an integral part of a building, structure or equipment.* *Fixed ladders meaning those that are permanently attached to a building, structure, or equipment shall be the subject of separate*	左記の理由で、ladder の解釈の追記と、原案の使用を提案します。	・別紙を参照ください。	→別紙のとおり、変更しました。

				design by the Contractor if for use in Temporary Works or by the Employer if for use in Permanent Works. *Fixed ladders whether for use in Temporary Works or Permanent Works shall be provided with fall protection for lengths of 7.32 metres and above in accordance with ANSI standard A14. 2-1990.*			
19.	66	7.6.3	7.6.3 Blasting Noise (JC250) Noise levels, measured in areas close to the Exclusion Zone and in areas accessible to other workers or the public shall not exceed a sound pressure level of 85 dBA and/or a peak sound level of 110 dB. Noise levels measured at the boundary of the Site shall not exceed a sound pressure level of 85 dBA and/or a peak sound level of 110 dB. JC250: 音量のレベルと、サイト内で規制をかけるということについては、参照文献を確認させてください。dB の表現（dBA とするか否か）についてもそれに合わせて確認願います。 Please submit reference documents for JIICA's confirmation. Please check which of dB or dBA shall be specified.	下記の理由で、下記の斜文字の規定に変更することを提案致します。(詳細は別紙添付 - 2 参照) 1) 香港 MTR のスペックを参考にし、85 dBA と 110 dB を規定していました。 2) 日本の騒音規則は、現場の境界で 85 dB を越えないことと規定。 3) OSHA は、peak sound pressure level が 140dB を越えないことと規定。 4) HSE は、同様に 140dB を越えないことと規定。 以上から、現場の境界では、香港 MRT を参照に 85dBA 及び 110 dBを越えないこと、現場内では JSSS 2.1.4 [Noise]の規定を遵守することを追加で規定します。 尚、2.1.4 に peak sound pressure level は 140dB を越えないことを追加で規定します。 NK: Please refer to the explanation separately attached. MD: The reference is made to the Hong Kong MTR, Materials and Workmanship Specification for Civil Engineering Works, Blasting Works clause 25.12, provided by JICA as shown below. "Noise arising from blasting, when measured at any locations open to the public, shall not exceed a sound pressure level of 85 dBA *and/or a peak sound level of 110 dB."* NK: Japanese Noise Regulation Act stipulates noise of the specific construction works shall not exceed 85 dB at the boundary of the working area. It does not mention other than this. NK propose to replace them with the following: *7.6.3* *Noise levels measured at the boundary of the Site shall not exceed a sound pressure level of 85 dBA and/or a peak sound pressure level of 110 dB.* *Noise from blasting in the Site shall be controlled in accordance with JSSS 2.1.4 [Noise].* NK: The following sentence may be stipulated in 2.1.4 (b) to cover impulsive or impact noise. 2.1.4 (b) *Exposure to impulsive or impact noise shall not exceed 140 dB peak sound pressure level.* (copied from OSHA 1926.52 (e))	左記の理由で、変更を提案致します。	発破作業で vibration に対しての規制は近隣構造物の保護の見地から記載されることがありますが、発破で発生する騒音のレベルに対して規定することは特殊な場合に限定されませんか？香港は近隣住民が多いことが多いのと、香港花崗岩という地質条件から発破作業が避けられないという特殊性があり騒音レベルが記載されているのではないですか？ **→7.6.3 の最初の文（下記）は削除でお願いします。** Noise levels measured at the boundary of the Site shall not exceed a sound pressure level of 85 dBA and/or a peak sound pressure level of 110 dB.	→7.6.3 の最初の文を削除しました
（追加）	69-A	10.2.3(2)			Baseline Safety Plan は HSO がレビューするという表現はおかしいため、削除が適当です。	→MD 氏からこのコメントに対し、次の回答がありました。 OSHA 1910.420 Safe practices manual で、OSHA D. 29 CFR 1910.420 Safe practices manual. (a) General. The employer shall develop and maintain a safe practices manual…と規定されており、Engineer がレビューするとしても、HSO がレビューすべきである。 妥協案として、NK は次を提案しました。 (2) The Contractor shall ensure that the Baseline Safety Plan shall be correct and compliant with the requirements of OSHA and JSSS. MD 氏はこの提案に同意していません。 そのため、HSO がレビューすることが規定されている 10.2.4	

							Particular Safety Plan (5)への貴コメントに対して、NK は次の追記を提案しました。MD 氏はこの提案にコメントは無く、下記に変更します。 (5) The Particular Safety Plan shall be internally reviewed and approved by the HSO, and submitted to the Engineer for his review. この(5)と同様に上の(2)の下記の変更案を考えております。 (2) The HSO shall internally review the Baseline Safety Plan to determine if it is correct and compliant with the requirements of OSHA and JSSS. (2)につきまして貴機構のご意見をお聞かせ願います。
20.	70	10.2.4 (1)	10.2.4 ~~Particular~~ Dive Safety ~~Plans~~ Schedule (1) ~~In compliance with JSSS 1.7.8 [*Particular Safety Plans*], the Particular Dive Safety Plans shall contain all further information specific to each Diving Operation not covered by the foregoing Bid Stage and Baseline Dive Plans together with~~ In order to secure safety of all Diving Operations, a dive safety schedule shall be prepared containing information specific to Diving Operations to be carried out in a day together with all supplemental information obtained during pre-dive planning and assessment, to collectively demonstrate the Contractor's compliance with the requirements of OSHA and JSSS for each Diving Operation, including for example: (JC277) JC277: deleted, added and modified.	10.2.1 で提案しましたように、10.2.4 として Particular Safety Plans (for Diving Works)を提案致します。貴機構提案の Dive Safety Schedule は、10.2.5 に 10.2.5 Pre-dive Safety Plan に規定致します。 (1) In compliance with JSSS 1.7.8 [Particular Safety Plans], the Particular Safety Plans shall contain all further information specific to Diving Works not covered by the foregoing Bid Stage and Baseline Safety Plans together with all supplemental information obtained during pre-dive planning and assessment, as necessary to comply with the requirements OSHA in particular OSHA 1910.421 [Pre-dive procedures] for all Diving Works. (2) The Particular Safety Plans shall be prepared for the basis of the Pre-dive Safety Plan for Diving Operation to be carried out in a day. (3) The Particular Safety Plans shall include the following for example, however, the plan shall be modified to be indicative for the use of the Pre-dive Safety Plan:	変更案を提案します。	(1)・10.2.4(1)の末尾の部分に of か何かを入れておかなくてよいでしょうか？(下記赤字)「requirements of OSHA in particular OSHA 1910.421」 (2)・10.2.4(3)の後段の意味がよくわかりません。 The Particular Safety Plans shall include the following for example, however, the plan be modified to be indicative for the use of the Pre-dive Safety Plan: PSP と Pre-dive Safety Plan の関係を示そうとされているのであれば、non-native も分かるような表現に修正してください。但し、10.2.5 の(2)の記述があるので、削除して良いかもしれません。→見直して修正 (3) ・10.2.4 の(4)、(5)の下記の記述について、PSP は総則に従えば HSO が作成してエンジニアの review を受けるべきドキュメントなので、そういう方向で修正をしてください。但し、diving の特殊性に鑑み、作成にあたって DPCI や diver の協力を得て作成するといった言い方を妨げません。→総則にレベル感を合わせて修正 (4) The Particular Safety Plan shall be prepared by the DPIC or another Diver that has the qualification, experience and capability deemed sufficient by the HSO. (5) The Particular Safety Plan shall be reviewed and approved by the HSO.	(1) →of OSHA と変更します。 (2) →次の文章に変更します。 "The Particular Safety Plans shall include the following example items which may be later modified by the Pre-dive Safety Plan:" (3) →(4)は原案とおりとし、(5)を次のように赤字部分を追記した文章に変更します。 "(5) The Particular Safety Plan shall be internally reviewed and approved by the HSO, and submitted to the Engineer for his review."
21.	72	10.2.5	10.2.5 Pre-dive Safety Plan	10.2.1 で提案しましたように 10.2.5 Pre-dive Safety Plan (Dive Safety Schedule の代替)の款及び規定を次のように提案致します。 10.2.5 Pre-dive Safety Plan The Contractor shall prepare Pre-dive Safety Plan for each Diving Operation as follows: (1) To contain information specific to the Diving Operation to be carried out in a day to secure safety of Diving Operation, in accordance with OSHA 1910.421 [Pre-dive procedures]; (2) To describe the items given in the above 10.2.4 (1) in specific according the Diving Operation to be made; (3) To use for briefing to the Dive team. (4) To be prepared by DPIC or another Diver that has qualification, experience and capability deemed sufficient by the HSO; (5) To be submitted to the HSO by the day preceding the	款の追加を提案します。	10.2.5(2)でリファーすべきなのは 10.2.4(1)ではなく(3)なので、そのように修正してください。	→ 10.2.4 (3)は、PSP に規定すべき事項を例示しています。一方、(1)は PSP で規定すべき事項を全体的に規定しています。そのため、PSP が規定する事項は、(1)に規定された全ての項目が妥当です。 そのため、原案とおり 10.2.4 (1)を規定します。

				scheduled date of the Diving Operation for his review and approval; (6) To be available at the dive location to each Dive Team member.			
22.	73	10.3.1 (2)	(2) The (updated) Baseline ~~Dive~~ (JC278) Safety Plan shall describe how such criteria shall be applied and how such controls shall be implemented. JC278: deleted and modified.	(updated)の追加の必要性について検討致しました。Baseline SP は基本的な計画を規定するものですので、特別な場合のみ原則の変更を行うことは避け、作業に必要な計画は、Particular SP に記載すべきと考えます。他と統一するためこの(2)の(updated)の追記はをしないことを提案致します。	(updated) の削除と1.7.7(4)の追記を提案します。	（岡本）Baseline SP は最初に作成して持っておくだけのドキュメントではなく、活用して Update していく過程で進歩させるべきものです。従って、この部分はご提案どおりの内容で結構ですが、1.7.7 に(4)としてその趣旨の規定を追加してください。（左欄に追記が提案されているのはその趣旨と理解しております） （9/11 付追記、迫田さんメールより） 1.7.7(4) If, at any time, the Engineer gives notice to the Contractor that the Baseline Safety Plan fails (to the extent stated) to comply with the Contract or to be consistent with the Contractor's stated intentions, and that cannot be corrected by the issue of a Particular Safety Plan, the Contractor shall submit a revised Baseline Safety Plan to the Engineer in accordance with this Clause. →上記を追加する。	→ 1.7.7(4)に左記の文章を追記しました。

JICA へ確認依頼(コメント番号は表の番号(先の確認表の番号)20200916
Changes by MD 20200916
Deletion of long titles to make them consistence proposed by NK on 20200914
Revision for final by NK discussed in the meeting with JICA on 20200911
Nos in comments are those in JICA confirmation list A2.

For Final by JICA/NK

JICA STANDARD SAFETY SPECIFICATION FOR PROJECT IMPLEMENTATION UNDER JAPANESE ODA

Japan International Cooperation Agency (JICA)

17th September 2020

Prepared: DCI for NK
Issue: FR3
Date: 17/9/2020

コメントの追加 **[MJD1]:** Shall I leave this as 14 September and FR3 throughout?

Please advise and we will change headers throughout

コメントの追加 **[SS2R1]:** Please put your date and issue No. for your reference.

I will revise them in the final report as follows:

September 2020
Not show the Prepared, Issue and Date

Header on the text may be Issue No. FR and Date:
September 2020

コメントの追加 **[MJD3R1]:** I have changed as requested

ACKNOWLEDGEMENTS

JICA have referred to other publications during the preparation of this document and parts of such other publications have been used in the preparation hereof. JICA acknowledges and gives credit to these sources/publications which include:

1) Japanese Acts, Orders and Ordinances including:

Industrial Safety and Health Act

Order for Enforcement of Industrial Safety and Health Act

Ordinance on Industrial Safety and Health

Safety Ordinance for Cranes

Ordinance on Safety and Health of Work under High Pressure

Ordinance on Prevention of Anoxia, etc.

Ordinance on Prevention of Hazards Due to Dust

Explosives Control Act

Order for Enforcement of Explosives Control Act

Ordinance on Explosives Control

2) OSHA Standards as written in Code of Federal Regulation (29 CFR) and published by the Occupational Safety and Health Administration, U.S. Department of Labor.

3) Construction (Design and Management) Regulations 2015, published by the UK Health and Safety Executive.

4) Conditions of Contract for Construction for Building and Engineering Works Designed by The Employer (Multilateral Development Bank Harmonised Edition June 2010) published by Fédération Internationale des Ingénieurs-Conseils (FIDIC)

DISCLAIMER

JICA has prepared and issued this document in good faith for the reference of executing agencies, contractors and project teams engaged under the Japanese ODA programme, to encourage the attainment of a higher standard of health and safety management on its construction projects. JICA, together with the Executing Agencies of its ODA Projects shall not accept or assume any liability or responsibility for any events or the consequences deriving from the use of this document. The document is provided without any express or implied warranty, including without limitation, warranties of accuracy, completeness, fitness for purpose, in general or on particular projects. This document is intended to provide general reference and shall not be relied upon as a specific legal source or reference or used in any way as a basis of any claim by a contractor against any employer or vice versa under any contract for the execution of any works.

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JICA STANDARD SAFETY SPECIFICATION (JSSS)

Table of Contents

コメントの追加 [SS4]: No. 1（全表無し）JSSS の節のタイトルの簡略化を行い、この目次にも反映されています。

緑、黄色部分が変更部分です。

現在、全章内で統一のチェック中です。

CHAPTER 1: GENERAL REQUIREMENTS

1.1 SAFETY DECLARATION

1.1.1 Adopting the slogan “SAFETY FIRST”, the Contractor shall proactively aim to achieve “Zero-Accident” by applying the highest achievable standards of health and safety management.

1.1.2 A Safety Declaration shall be submitted with the Bid, declaring the Bidder’s commitments and obligations, in accordance with JSSS Annex 1.3 [*Additional Contractor Forms*], Form JSSS/BSD - Bidder’s Safety Declaration.

1.2 GENERAL REFERENCE NOTES

1.2.1 For Definitions, abbreviations and standards contained in JSSS, refer to JSSS Annex 1.1 [*Definitions and Abbreviations*].

1.2.2 The following further general reference notes apply to the content of JSSS:

(1) References to “Bid” and “Contract” and to “Bidder” and “Contractor” shall be interchangeable according to the context of their use. “Bid” and “Bidder” shall become “Contract” and “Contractor” after the Contract Agreement has been executed.

(2) ~~References to “Laws of the Country” shall include all safety standards under such Laws and shall also include references to Laws of any other jurisdiction that may be stated in the Contract Data.~~

(3) Any reference to “Safety” unless otherwise evident from the text shall also be construed as reference to “Health and Safety”.

(4) Any reference to academic, educational or vocational qualification within this document, shall mean a valid qualification demonstrated by a certified true copy of a diploma, degree, or other official certification issued by an acknowledged educational institution of the Country or an equivalent alternative certification issued by an acknowledged educational institution of another country.

(5) Unless otherwise stated in JSSS, any reference in JSSS to the Site, shall also be deemed to include other places (if any) where the Contractor intends to execute or is executing the Works including for example offsite storage, fabrication and assembly areas and any other working areas outside the Site boundary.

(6) JSSS requires the provision of safety management services and facilities by the Contractor to Contractor’s Personnel and unless otherwise stated this shall also be deemed to include the provision by the Contractor of the same services and facilities (including for example training, accident response, healthcare, ~~provision of PPE,~~ records, reports, control of hazards and risks, use of Temporary Works, and the like) to any Subcontractors, suppliers and others for whom the Contractor is responsible including Employer’s Personnel and all other persons that are entitled to be on the Site.

(7) Any reference in JSSS to “relevant authority” or “relevant authorities” shall mean one (1) or more legally constituted public authorities that own or have legal jurisdiction over the work or property concerned.

(8) JSSS shall form a part of the Contract for the Works and therefore the definitions contained in the Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer, Multilateral Development Bank Harmonised Edition June 2010, General Conditions together with the Particular Conditions Part A - Contract Data and Part B - Specific Provisions, as applied to that Contract, apply equally and are used in JSSS.

Unless specified otherwise or instructed by the Engineer, the issue of JSSS to be used for the Contract shall be that which is applicable at the Base Date.

コメントの追加 **[SS5]:** No. 2
JICA agreed to delete (2) as NK and MD discussed.

コメントの追加 **[MJD6R5]:** No comment will change

コメントの追加 **[SS7R5]:** Confirmed.

コメントの追加 **[SS8]:** 2. (2)

コメントの追加 **[SS9]:** No. 3
JICA commented provision of PPE to the Employer is not recommendable.
NK agreed to delete this as special PPE shall be provided by the Contractor at the Site.

コメントの追加 **[MJD10R9]:** No comment will change

コメントの追加 **[SS11R9]:** Confirmed.

コメントの追加 **[SS12]:** 3. (3)

1.3 INCORPORATION OF JSSS INTO THE CONTRACT

1.3.1 JSSS shall form a part of the Safety Specification which, in turn forms a part of the Specification. The Safety Specification shall have priority over the other parts of the Specification in respect of health and safety matters. Within the Safety Specification, the Particular Safety Specification shall have priority over JSSS.

1.3.2 The Annexes to JSSS 1: General Requirements shall be read and construed as an integral part of JSSS.

1.4 COMPLIANCE WITH JSSS AND OTHER REGULATIONS

1.4.1 JSSS specifies the minimum health and safety requirements to be complied with by the Contractor throughout the execution of the Works.

1.4.2 JSSS shall not limit the Contractor's statutory or regulatory duties and responsibilities under the Laws of the Country and/or the specific health and safety requirements of the Contract.

1.4.3 The Contractor shall comply fully with the requirements of the Safety Specification.

1.4.4 If there are no or insufficient safety provisions in the Laws of the Country, in JSSS or in the Particular Safety Specification for the particular part of the Works, the Contractor shall propose suitable internationally acceptable safety regulations for the Engineer's consent.

1.4.5 Specified Standards

(1) Unless otherwise instructed by the Engineer, a reference to any standard (hereinafter deemed to include specified safety regulations or codes) shall mean a reference to the latest issued edition of that standard as at the Base Date.

(2) Standards specified in JSSS can be substituted with an equivalent alternative in following manner;

(a) The Contractor submits a formal request with particulars to the Engineer, and

(b) The Engineer gives a consent to the substitution,

(c) only if he considers such alternative is internationally acceptable and equivalent or higher than the standard in JSSS.

コメントの追加 **[MJD13]:** Punctuation and capitalisation is not changed as insertion is JICA request

(3) Application of detailed parts of any standards specified in JSSS may be waived at the formal request of the Contractor, only if the Contractor justifies with supporting particulars that those detailed parts are not relevant to the Contract and the Engineer gives his consent to such Contractor's request.

(4) Where JSSS refers to the standards of other countries, such reference is only to the technical requirements contained in such standards and not to any related Laws or legal enforceability of any of those countries.

1.4.6 Where there is any reference to OSHA and unless otherwise evident from the text, the words "team leader", "supervisor", "supervision", "superintendent" and the like shall be collectively construed as reference to the appropriate member of the Contractor's Personnel. Any reference to the "safety and health manager of the Contractor" and the like shall be construed as reference to the HSO and "The construction plan and safety and health plan", shall be construed as the "Method Statement" and "Safety Plan", respectively.

1.4.7 If any ambiguity or discrepancy is found in or between the various Chapters of JSSS or any reference documents and JSSS, the Engineer shall issue any necessary clarification or instruction. For the purposes of interpretation:

(1) The requirements of JSSS 1: General Requirements, shall prevail over the requirements of other Chapters of the document.

(2) JSSS 2 to 6 contain requirements which are of general application and the content of each shall apply to content of all others unless otherwise stated or unless the context is

otherwise clear.

1.4.8 Unless otherwise stated in JSSS or in the Particular Safety Specification, the Contractor shall comply with the requirements of JSSS throughout the execution of the Contract.

1.4.9 The Contractor shall fully inform his personnel, his Subcontractors, suppliers and consultants and all other parties who are associated with the Works of the existence, content, purpose and objectives of JSSS.

1.5 CONTRACTOR'S SAFETY MANAGEMENT SYSTEM

1.5.1 The Contractor shall institute a health and safety management system in accordance with ISO 45001.

1.5.2 Alternatively, the Contractor may institute his own safety management system and regularly conduct audits in accordance with JSSS 1.17 [*Compliance Monitoring and Auditing*].

1.5.3 The safety management system shall be proposed as a part of the Contractor's Safety Plans to the Engineer for his consent.

1.6 CHECKING AND VALIDATION OF SUBMISSIONS

1.6.1 The Contractor shall demonstrate that his internal procedures for checking and validation of all submissions properly function through written confirmation and signature of each of the Contractor's responsible personnel, including for example the Contractor's Representative, HSO, Temporary Works coordination, design and supervision staff and any independent checkers as appropriate. This requirement relates to all submissions for the safety, including Safety Plans, Method Statements, Temporary Works (such as drawings, designs and calculations) and of all supporting documents.

1.7 CONTRACTOR'S SAFETY PLANS

1.7.1 The Contractor shall prepare Safety Plans for the Works showing the Contractor's proposed health and safety management policies, systems and plans specifically prepared for all parts of the Works.

1.7.2 The Safety Plans shall set out or refer to all the health and safety requirements:

(1) That are stated in JSSS.

(2) That comply with the Contractor's health and safety obligations under the Laws of the Country and the Contract.

(3) That are necessary to effect and maintain a healthy and safe working environment for all Contractor's Personnel.

1.7.3 The Contractor shall be required to prepare and submit the Safety Plans principally at three (3) stages:

(1) Bid Stage Safety Plan (Outline Overall Safety Plan).

(2) Baseline Safety Plan (Updated Bid Stage Safety Plan).

(3) Particular Safety Plans (Separate plans if necessary for particular parts of the Works).

1.7.4 The Safety Plans shall ultimately provide an accurate and comprehensive description of the Contractor's arrangements to ensure that health and safety management is maintained at a high level.

1.7.5 Submission of any Safety Plan and inclusion in the Bid or Contract or any further submission to the Engineer, shall not place any limit upon the Contractor's obligations. Any additional requirements as determined by the Contract or consequent to instructions of the Engineer or by requirements at the Site, shall be complied with by the Contractor under his own responsibility.

1.7.6 Bid Stage Safety Plan:

(1) This shall be an outline plan, containing indicative content for all of the subjects listed in JSSS Annex 1.2 [*Content of Bid Stage Safety Plan*].

(2) The plan shall demonstrate that the Bidder has a clear understanding of the health and safety requirements for the Works and contain clear and sufficient detail of each item to indicate the Bidder's intentions, so that this can be understood and properly evaluated.

1.7.7 Baseline Safety Plan

(1) This shall be submitted within twenty-eight (28) days after the Commencement Date and before commencing any work at the Site.

(2) This shall be an updated Safety Plan for the whole of the Works showing the Contractor's proposed health and safety management policies, systems and plans etc. specifically prepared for all parts of the Works.

(3) This shall be based upon the Bid Stage Safety Plan, further developed as necessary by the HSO to provide a comprehensive overall Safety Plan demonstrating the Contractor's intended compliance with the Contract.

(4) If, at any time, the Engineer gives notice to the Contractor that the Baseline Safety Plan fails (to the extent stated) to comply with the Contract or to be consistent with the Contractor's stated intentions, and that cannot be corrected by the issue of a Particular Safety Plan, the Contractor shall submit a revised Baseline Safety Plan to the Engineer in accordance with this Clause.

1.7.8 Particular Safety Plans

(1) These shall be prepared as necessary to suit changing circumstances or conditions at the Site, or following the issue of Method Statements, or where considered necessary by the HSO or when required by the Engineer.

1.7.9 Procedures for Submission and Review

(1) The Contractor shall submit the Baseline Safety Plan and the Particular Safety Plans showing details of the health and safety arrangements which the Contractor proposes to adopt for the execution of the Works or any part of the Works.

(2) The Contractor shall submit:

(a) The Baseline Safety Plan in accordance with JSSS 1.7.7 [*Baseline Safety Plan*]; and

(b) The Particular Safety Plans by the date fourteen (14) days prior to the commencement of each particular part of the Works where sufficient detail has not been included in the Baseline Safety Plan and/or within fourteen (14) days after the date of the Engineer's request.

(3) Requirements for response (if any) by the Engineer and any re-submission by the Contractor and, shall be as follows:

(a) The Engineer may review the Safety Plans and may give notice of non-compliance to the Contractor stating the extent to which the Safety Plan does not comply with the Contract. Within fourteen (14) days after receiving any such notice the Contractor shall rectify any non-compliance and resubmit to the Engineer; and

(b) If the Engineer gives no such notice of non-compliance for the original Safety Plan within twenty-one (21) days of the date of receipt or for the resubmitted within fourteen (14) days of receipt, the Contractor shall proceed in accordance with the Safety Plan subject to complying with his other obligations under the Contract.

1.7.10 The Contractor shall maintain records and make reports in accordance with JSSS and the applicable health and safety regulations, and further comply with any reasonable requests by

コメントの追加 **[SS14]:** JICA requested to add (4) which was not shown in the last submission but I showed this to add this (4).
NK agreed to add this.

コメントの追加 **[MJD15R14]:** No comment will change

コメントの追加 **[SS16R14]:** Confirmed.

the Engineer (if any).

1.7.11 Compliance with the Safety Plan and JSSS shall not relieve the Contractor from any duty, obligation or responsibility under or in connection with the Contract.

1.7.12 The Contractor shall also consider the opinions of his workers in preparing Safety Plans or updated Safety Plans.

1.8 RISK ASSESSMENT

1.8.1 In performing risk assessments, the Contractor shall find and correct all potential risks and hazards primarily by trying to eliminate or reduce such risks and hazards through making feasible changes in working conditions rather than relying on PPE.

1.8.2 The Contractor shall fully inform Contractor's Personnel of hazards and risks on the Site.

1.8.3 The procedural flow of risk assessment shall be as follows.

(1) Identifying hazards.

(2) Evaluating risks.

(3) Determining measures of risk reduction or elimination.

1.8.4 The procedural flow for risk reduction measures shall be as follows with earlier listed items having higher priority:

(1) Removal of hazards such as eliminating dangerous methods of construction.

(2) Changing to a safer construction method and alternating to low risk processes, operations, materials or equipment.

(3) Engineering measures.

(4) Management measures including improving skills with additional training.

(5) Use of PPE.

1.9 CONTRACTOR'S METHOD STATEMENTS

1.9.1 The Contractor shall prepare Method Statements for all parts of the Works with details of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works.

1.9.2 Method Statements shall be developed taking account of the results of risk assessment in accordance with JSSS 1.8 [*Risk Assessment*] and include details of all Permanent Works and Temporary Works with supporting documents such as:

(1) Studies, investigations and designs.

(2) Structural calculations and any other calculations.

(3) Specifications and technical details.

(4) Proposed construction procedure, sequence and method.

(5) Construction resources including superintendents, workers, Operation Leaders and Contractor's Equipment.

(6) Inspection and monitoring plan.

1.9.3 The Contractor shall demonstrate in the Method Statements that he has put internal procedures in place to encourage the systematic approach to performing the Works in an efficient, safe and environmentally compliant manner.

1.9.4 The Contractor shall submit Method Statements showing details of the arrangements and methods which the Contractor proposes to adopt for the execution of any part of the Works. Whenever the Engineer requires further information, the Contractor shall submit the required information within fourteen (14) days of the request.

1.9.5 Requirements for submission by Contractor and response (if any) by the Engineer to Method Statements, shall be as follows:

(1) The Engineer may review the Method Statements and may give notice of non-compliance to the Contractor stating the extent to which the Method Statements do not comply with the Contract. Within fourteen (14) days after receiving any such notice the Contractor shall rectify any non-compliance and resubmit to the Engineer.

(2) If the Engineer gives no such notice of non-compliance for the original Method Statement within twenty-one (21) days of the date of receipt or for the resubmitted within fourteen (14) days of receipt, the Contractor shall proceed in accordance with the Method Statement.

(3) The Contractor shall submit a revised Method Statement whenever required by the Engineer or when any previous Method Statement for any part of the Works is inconsistent with actual conditions or requirements prevailing at the Site.

(4) The Method Statement shall be revised as necessary by the Contractor or the HSO and each revision shall be submitted promptly to the Engineer.

1.10 ENGINEER'S SAFETY REPRESENTATIVE

1.10.1 The Engineer may delegate his power and authority to any of his assistants at the Site who shall act as the Engineer's health and safety representative for the purpose of complying with any health and safety obligations under JSSS.

1.10.2 The terms of the appointment shall be in accordance with GC 3.2 [*Delegation by the Engineer*].

1.10.3 Whenever the term "Engineer" is used in JSSS this shall be deemed to include the resident engineer or any other assistant of the Engineer if so appointed in accordance with the terms of their delegated authority.

1.11 SAFETY COMPLIANCE INSTRUCTIONS FROM THE ENGINEER

1.11.1 Without affecting or diminishing the Contractor's responsibility under GC 4.1 [*Contractor's General Obligations*] and to ensure the adequacy, stability and safety of all Site operations and of all methods of construction, the Engineer shall observe the Contractor's performance at the Site and if in his opinion the Contractor is failing or has failed to carry out any part of the Works in accordance with the Safety Plan or other health and safety requirements of the Contract, the Engineer may give notice and instruct the Contractor to take necessary corrective and preventive measures to comply with the Contract.

1.11.2 If any part of the Works is considered by the Engineer to pose a danger and which in his opinion could result in an accident, the Engineer may instruct the Contractor to suspend such part of the Works under GC 8.8 [*Suspension of Work*] until the Contractor has advised the Engineer of the proposed corrective and preventive measures, obtained the Engineer's consent and implemented such measures to ensure that such danger is eliminated.

1.11.3 If an accident has occurred, the Engineer may instruct the Contractor to suspend the Works or any part of the Works under GC 8.8 [*Suspension of Work*] and not allow work to recommence until such time as:

(1) All circumstances have been investigated and the cause of the accident has been established by the HSO.

(2) Corrective and preventive measures have been formulated by the HSO and proposed to the Engineer.

(3) The Engineer's consent has been obtained for such measures.

(4) The measures have been implemented to ensure that no such accident can reoccur.

1.11.4 The actions arising as above shall be deemed to be the responsibility of the Contractor irrespective of the issue of any action or instruction by the Engineer.

コメントの追加 **[SS17]:** No. 8
No need to revise because JICA agreed to leave "may" for which NK explained in the meeting of 9/11 as discussed with MD and Hayashi.

コメントの追加 **[MJD18R17]:** No further comment

コメントの追加 **[SS19R17]:** Confirmed.

コメントの追加 **[SS20]:** 4. (8)

1.12 HEALTH AND SAFETY OFFICER AT THE SITE (HSO)

1.12.1 Requirements for the HSO:

(1) The Contractor shall assign the HSO at the Site on or before the Commencement Date.

(2) The Contractor shall ensure that the Contractor's Personnel respect instructions issued by HSO in the health and safety aspects.

(3) If the named person is for any reason unavailable or if the appointed person fails to act as HSO and is removed from the Site, the Contractor shall submit the name and particulars of a suitable and equally experienced and qualified replacement to the Engineer for his consent.

(4) The HSO shall be an employee of the Contractor or a specialist health and safety consultant and unless otherwise specified in the Particular Safety Specification, the HSO shall be assigned full time upon the Works.

(5) The Contractor shall not revoke the appointment of the HSO or appoint a replacement without the prior consent of the Engineer.

(6) The HSO shall, where possible, be fluent in the ruling language of the Contract and also the language for communications stated in the Contract as defined in GC 1.4 [*Law and Language*]. It is acceptable for the HSO to use a translator for either or both of these languages.

(7) The HSO shall possess appropriate educational qualification for such position and (if so required by the Laws of the Country) shall be licensed or registered in the Country and perform such duties as are legally mandated.

(8) Where there is no requirement under the Laws of the Country the HSO shall have appropriate academic, educational or vocational qualification such as:

(a) An International Diploma issued by the National Examination Board in Occupational Safety and Health (NEBOSH) in UK; or

(b) A certification as a Certified Safety Professional (CSP) by the Board of Certified Safety Professionals (BCSP) in USA; or

(c) An equivalent alternative internationally recognised qualification covering health and safety and risk management.

(9) Unless otherwise specified in the Particular Safety Specification, the HSO shall have minimum five (5) years' work experience in the construction industry of which minimum two (2) years shall be in health and safety management.

(10) The HSO shall be a person that the Contractor considers is qualified, experienced and able to perform the duties competently and his appointment shall be subject to receiving the consent of the Engineer.

1.12.2 Supporting Personnel

(1) The Contractor shall also appoint such further supporting personnel as the HSO may from time to time deem necessary or as may be instructed by the Engineer, to permit the HSO to perform his duties.

(2) Such further supporting personnel may include Operation Leaders and/or other senior specialist and qualified Contractor's Personnel.

(3) Irrespective of any such appointment the HSO shall remain singularly responsible for the actions of such supporting personnel in terms of health and safety management.

(4) Any reference in JSSS to the HSO performing inspections or the like for the health and safety aspects of any parts of the Works, shall be understood to include any inspections performed by any of these supporting personnel on behalf of the HSO and for which the

HSO shall remain responsible.

(5) The HSO shall prepare an internal procedure for the management of his supporting personnel, to ensure that:

(a) Supporting personnel are made aware of the requirements for any inspection and the details thereof;

(b) Supporting personnel immediately advise the HSO of any unsafe conditions with recommendations to prohibit the start or to stop or to change safety practices for the particular work; and

(c) Communications and submissions between HSO and supporting personnel are efficient, timely and clear.

Following implementation and compliance with the above procedure, the HSO shall sign all inspection records as if the inspection has been carried out by the HSO.

(6) Where the Works or any part of the Works is to be performed in shifts or in excess of normal working hours, or over an extensive working area or where major works are being undertaken simultaneously, or like circumstances, the Contractor shall appoint additional qualified supporting personnel for the HSO all as necessary to ensure that the HSO is always able to perform his duties efficiently and effectively and so that health and safety management is not adversely affected.

1.12.3 Inspections

(1) The HSO shall be responsible for ensuring:

(a) That all working areas are inspected on a regular basis (at least once every working day or as otherwise required by JSSS) to detect if any unsafe practices, works or conditions exist and that all required safety measures are in place;

(b) That if such unsafe practices, works or conditions are found to exist, then to immediately issue instructions to all affected persons and immediately implement corrective measures in cooperation with such personnel or if this is not possible then to temporarily stop all construction activity on that part of the Works until such corrective action has been taken; and

(c) That all inspection requirements of JSSS are complied with including the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

(2) Any site inspections attended by the HSO, may also include the attendance of the Engineer at the option of the Engineer.

1.13 HSO - SCOPE OF DUTIES AND AUTHORITY

1.13.1 The HSO shall devote his full time and attention to maintaining health and safety upon the Works and protecting against accidents.

1.13.2 The particular scope of duties and authority of the HSO shall cover (but shall not be limited to) the following:

(1) Preparation and submission of Safety Plans, implementation, evaluation, improvement and revision thereof.

(2) Preparation of monthly schedule of health and safety management activities, informing the Contractor's Personnel.

(3) Regular (daily) inspections of the Works at the Site to ensure the Contractor's compliance with the Safety Plan.

(4) Temporarily stopping the Works or any part of the Works following any accident or where the HSO considers it unsafe to continue or where there is unsafe behaviour or

practices of the Contractor's Personnel or any non-compliance with the Safety Plan.

(5) Temporarily stopping the Works or any part of the Works where the Engineer so instructs in accordance with JSSS 1.11 [*Safety Compliance Instructions from the Engineer*].

(6) Investigating accidents, establishing cause, formulating and implementing preventive measures to avoid risk and prevent reoccurrence.

(7) Preparing proposals, reporting and consulting with the Engineer, especially when an accident occurs or any risk or hazardous situation is likely.

(8) Instructing Operation Leaders in the health and safety aspects of their work including requirements for inspection and confirmation of results to HSO.

(9) Instructing the Contractor's Personnel to take improvement measures for maintaining health and safety and preventing accidents.

(10) Assisting with the selection and assignment of workers and other Contractor's Personnel, including ascertaining the physical and mental health, age and capability in consideration of the nature of work to be carried out.

(11) Planning and implementation of various training and education implementation plans.

(12) Creating and implementing procedures for monitoring and maintaining accident and safety statistics, including fatalities, lost time records and near-miss cases.

(13) Preparing regular internal and external reports on health and safety activities.

(14) Hazard prediction activity.

1.14 PROCEDURE FOR RESUMING THE WORKS

1.14.1 If the Engineer has issued an instruction under JSSS 1.11 [*Safety Compliance Instructions from the Engineer*] or if the HSO has temporarily stopped the Works or any part of the Works in accordance with JSSS 1.13 [*HSO - Scope of Duties and Authority*], then, unless otherwise instructed by the Engineer, the procedure for resuming the Works or any part of the Works, shall be as follows:

(1) The Contractor (represented by the HSO) shall investigate and establish the cause, formulate preventive measures to ensure that the risk is avoided and accident cannot occur/reoccur.

(2) The Contractor (represented by the HSO), shall prepare and submit his proposal describing the investigation, cause and preventive measures to the Engineer.

(3) The Engineer ~~may~~ shall review the Contractor's proposal and may give notice of non-compliance to the Contractor stating the extent to which the proposal does not comply with the Contract. Within seven (7) days after receiving any such notice the Contractor shall rectify such non-compliance and resubmit to the Engineer.

(4) If the Engineer gives no such notice of non-compliance for the original proposal within seven (7) days of the date of receipt or for the resubmitted proposal within seven (7) days of receipt, the Contractor shall resume the Works or part thereof in accordance with the proposal by giving three (3) days' notice in writing of the resumption date.

To be proactive, the Engineer may give consent at any stage within the above stated time scales.

(5) The Contractor resumes the Works or part of the Works on the due date.

(6) The Contractor verifies the effectiveness of the preventive measures and informs the Engineer.

(7) The Contractor carries out a risk assessment and revises the Safety Plan and Method Statements as necessary.

コメントの追加 **[SS21]:** "may" is replaced with "shall" because involvement of the Engineer is necessary after accident to avoid recurrence of accident.

コメントの追加 **[MJD22R21]:** I agree and will change

コメントの追加 **[SS23R21]:** Confirmed.

コメントの追加 **[SS24]:** 4. (8)

コメントの追加 **[SS25]:** SS: I think this " may" be left as (4) states for the case of no such notice is given.

コメントの追加 **[MJD26R25]:** I agree and will not change

コメントの追加 **[SS27R25]:** Confirmed.

1.15 CONTRACTOR'S SAFETY MANAGEMENT ACTIVITIES

1.15.1 The Contractor shall faithfully implement the Safety Plan performing all necessary management activities to ensure total compliance.

1.15.2 In addition to the tasks of the HSO described above, the Contractor's health and safety management activities shall include (but are not limited to):

(1) Overall Safety Management Activities:

(a) Instruction on safety matters in the Toolbox Meetings (TBM);

(b) Pre-work meetings, pre-start meetings, schedule meetings and other internal meetings; and

(c) Monitoring the implementation of the Safety Plan.

(2) Daily Safety Management of Contractor's Personnel:

(a) Instruction and management on health and safety at general morning meetings, pre-work meetings, TBM;

(b) Providing specific advice and instructions to all Contractor's Personnel on their assigned work tasks in advance of starting so that all workers are aware of the requirements of the Method Statements and Safety Plan including work place, scope, methods, PPE, timing and safety procedures;

(c) Instruction and management of traditional Japanese cleanliness safety campaigns known in Japan as:

5S ACTIVITIES where: Seiri = sorting, Seiton = tidying, Seiso = cleaning, Seiketsu = cleanliness and Shituke = discipline;

(d) Instruction and management of safety education and training;

(e) Instruction and management of all safety measures; and

(f) Site Safety Inspections.

1.16 JOINT SITE SAFETY INSPECTIONS

1.16.1 In addition to the HSO's own daily Site Safety Inspections, the HSO shall conduct regular Joint Site Safety Inspections with the Engineer. Respective safety staff may also attend.

1.16.2 Frequency of Joint Site Safety Inspections shall be at least once a week.

1.16.3 Where any safety risks are detected during the inspections, the Contractor shall take immediate action.

1.16.4 The Engineer may be invited or may choose to participate in the Contractor's daily site safety inspections which will then be deemed to be a Joint Site Safety Inspection.

1.16.5 The Contractor shall prepare a report of each Joint Site Safety Inspection and submit this to the Engineer within seven (7) days after the inspection. A further copy shall be included in the Contractor's monthly progress report.

1.17 COMPLIANCE MONITORING AND AUDITING

1.17.1 The HSO shall develop and implement systems to ensure that compliance with the Safety Plan is ensured. Such compliance shall be monitored efficiently and transparently at all times, for which purpose the Contractor shall:

(1) Create checklists for monitoring.

(2) Carry out regular and random inspections.

(3) Analyse unsafe or non-compliant conditions and determine the effective measures in ensuring safety and minimising accidents.

(4) Create storage and filing systems for the monitoring records.

(5) Copy safety information to the Engineer as may be necessary for the Engineer's file if so requested by the Engineer.

1.17.2 Safety inspections are intended to search for risks and hazards which present a threat to safe working.

1.17.3 The Contractor shall also carry out regular health and safety audits, to ascertain if the Contractor's Safety Plan and health and safety management systems are working by focussing basically on the following five questions:

(1) Does the Safety Plan cover all regulatory and construction industry best practice requirements?

(2) Are the Safety Plan requirements being met?

(3) Is there documented proof of compliance?

(4) Is health and safety training effective?

(5) Is the Contractor's health and safety management system working effectively?

1.17.4 The persons or team designated to conduct the audits should take a fact-finding approach to gather data and members shall be familiar with the Safety Plan and the nature of the Works.

1.17.5 The audit procedures shall be prepared by a senior member of the Contractor's head office health and safety section and shall require the consent of the Engineer.

1.17.6 The audit shall be headed by a senior member of the Contractor's head office health and safety section.

1.17.7 Audits may be outsourced by the Contractor to a health and safety company subject to obtaining the consent of the Engineer.

1.17.8 The HSO may attend audits but only in an advisory capacity.

1.17.9 The Contractor shall invite the Engineer to attend in the capacity of a witness ensuring that the audit is being carried out effectively and with a balanced, fair and non-biased approach.

1.17.10 The health and safety audits are primarily to check the effectiveness of the Safety Plan, the Contractor's health and safety personnel and the Contractor's health and safety management systems. The Audits shall not replace the regular health and safety inspections.

1.17.11 The audits shall be conducted at least twice every year and without giving notice to the Contractor's Personnel or others when any audit is to take place.

1.17.12 An audit report shall be prepared by the leader of the audit team, detailing the findings of the team and submitted to the HSO, with a copy to the Engineer within seven (7) days after the audit. The report shall be signed by all attendees of the Contractor to certify their agreement to the content and to any recommendations for improvement.

1.17.13 The HSO shall analyse the findings of the audit, revise the Safety Plan and change health and safety management practices as necessary to ensure the required improvement. The Engineer shall be fully informed of all such revisions and changes.

1.18 PROPER PLACEMENT OF CONTRACTOR'S PERSONNEL

1.18.1 To a varying extent, many types of construction works are inherently dangerous and accordingly the Contractor under his duty of care must ensure that risks arising from all such potential dangers are avoided and Contractor's Personnel consequently protected.

1.18.2 In compliance with GC 6.9 [*Contractor's Personnel*], the Contractor shall assign only those personnel who are appropriately qualified, skilled and experienced in their respective trades or occupations. Contractor's Personnel shall also be suitable and capable of performing the work tasks for which they are selected in consideration of their physical fitness, mental condition,

age and capability, all shall be equipped with correct PPE, tools, equipment and safety equipment.

1.18.3 Workers and unskilled workers shall never be assigned to any work on Site on their own, all shall be assigned in groups and each work group must always include an Operation Leader to ensure compliance with the Contractor's safety regulations.

1.18.4 The correct grades and numbers of Contractor's Personnel shall be assigned to respective work tasks and reasonable times and durations and support facilities shall be afforded by the Contractor to promote the safe and effective discharge of duties.

1.18.5 The HSO shall countersign all records to certify his confirmation that each member of the Contractor's Personnel is appropriately qualified, skilled and experienced in their respective trades or occupations prior to their placement. These records shall be made available for inspection by the Engineer.

1.18.6 Suitability of Contractor's Personnel and their work assignment shall be assessed by the Contractor with the assistance of the HSO in consideration of:

(1) Work content and work environment.

(2) Educational or vocational qualifications, practical experience, skill training and eligibility for category, title, rank or position by virtue of their achieved and demonstrated capability.

(3) Physical and mental health condition upon commencement of employment and on a regular basis before daily work starts.

(4) Allocation of an achievable and safe work volume and time.

(5) Allocation of suitable work to older workers and also to workers under 18 in compliance with GC 6.21 [*Child Labour*].

1.18.7 If the Laws of the Country require operating, supervising or management staff or any other Contractor's Personnel to have a licence, particular academic, educational or vocational qualification, diploma, registration or certification for any of their services or operations at Site, the Contractor shall ascertain that all such Contractor's Personnel possess such documents.

1.18.8 The Contractor shall ascertain the authenticity and validity of licenses and all other documentation for Contractor's Personnel and if necessary shall independently test all personnel to ascertain that they do possess sufficient knowledge, academic, educational or vocational qualification, experience and skills.

1.18.9 The Contractor shall implement an identification (ID) pass system whereby all Contractor's Personnel carry ID passes with name, photograph, blood type, official ID number and statement of the skill and position for which the worker is qualified and assigned. This shall be clearly displayed by the person and be available for inspection and validation by the Engineer at all times. If any of the Contractor's Personnel is found not to have such valid ID for the position upon which he is assigned, the Engineer will instruct that person directly to stop work immediately, contact the HSO immediately and instruct that the HSO resolves the situation without delay by immediately removing the offending person from the particular work being undertaken and assigning a suitable replacement, unless otherwise instructed by the Engineer.

1.19 SAFETY TRAINING GENERALLY

1.19.1 The Contractor shall conduct health and safety education and training for all the Contractor's Personnel.

1.19.2 The Contractor shall describe in the Safety Plan the outline of the health and safety training plans describing participants, time, teaching materials, policy for selecting trainers, etc. In addition, the Contractor shall submit full details of all health and safety training to the Engineer for information before the start of any training.

1.19.3 Training shall be provided free-of-charge to all participants and conducted during normal working hours, all trainees shall be paid their normal wages during training and the Contractor shall bear all necessary associated costs and expenses.

1.19.4 Training shall be provided in a language which the persons to be trained fully understand (i.e. the language of the persons to be trained or the language for communications as defined in GC 1.4 [*Law and language*] as appropriate.

1.19.5 Training Personnel

(1) Trainers (which description shall include teachers and educators also) can be personnel employed by the Contractor or external trainers for whom the Contractor shall remain responsible, all experienced, academically, educationally or vocationally qualified and (if required by the Laws of the Country), formally registered as trainers, teachers and educators.

(2) All trainers shall be fluent in the language to be used in the training. Where necessary, proficient translators familiar with construction safety terms shall be provided by the Contractor.

(3) In case of absence of availability of suitable trainers in the Country, the Contractor shall mobilise personnel from other countries whom the Contractor considers possess the necessary academic, educational or vocational qualification, ability and experience, subject to receiving the advance consent of the Engineer.

1.19.6 Records of Education and Training

The Contractor shall create and maintain records of all trainees, showing full details of training subjects and their capability, achievements etc., and all shall be made available for the inspection of the Engineer.

1.20 SAFETY INDUCTION TRAINING

1.20.1 Safety induction training shall be provided by the Contractor for all Contractor's Personnel, any Subcontractors, suppliers and others for whom he is responsible, including the Employer's Personnel and all other persons who are entitled to be on the Site at the request of the Employer or Engineer.

1.20.2 The safety induction training shall include classroom-based training course and practical on-site demonstration, in which the following subjects shall be covered:

(1) Responsible persons, chain of command and means of communication.

(2) Use of Contractor's Equipment, small tools and tackle, machinery, Temporary Works, Goods, materials; potential danger and required care.

(3) Working procedures generally.

(4) Inspections before starting and during execution of any work, reporting unsafe working conditions and equipment.

(5) Dangerous Work; General rules, locations, posting warning signs, precautions and general working requirements. Refer to JSSS 1.22 [*Dangerous Work*] for additional training requirements.

(6) PPE and other safety devices; use, handling and care, reporting worn, damaged or defective equipment.

(7) Maintaining all working areas in an orderly, tidy and clean condition at all times.

(8) Accidents; action, evacuation and treatment, basic first-response medical aid, reporting.

(9) Firefighting; actions, precautions and control.

(10) Health and safety rules.

(11) Causes and prevention of diseases and conditions which may be injurious to health that may occur in relation to the work concerned.

(12) Emergency Response Plan; evacuation and calling list.

(13) Other related health and safety matters.

1.21 SKILL TRAINING

1.21.1 The Contractor shall ensure that all Contractor's Personnel shall be appropriately qualified, skilled and experienced in their respective trades or occupations in accordance with JSSS 1.18.2.

1.21.2 The Contractor is also reminded of his obligations under GC 6.1 [*Engagement of Staff and Labour*] according to which the Contractor is encouraged, to the extent practicable and reasonable, to mobilise the local human resources with appropriate qualifications and experience. However, if the qualified, skilled and experienced Contractor's Personnel required by the Contract is not available in the Country or not available in the numbers or of the standards of for the periods required, the Contractor shall:

(1) Source and assign upon the Works Contractor's Personnel (of at least Operation Leader and skilled worker status) from other countries, and/or

(2) Recruit candidates in the Country and train them to provide the skill required to properly perform their assignments.

This shall be in such numbers and for such periods as are necessary to maintain the required standards of performance, quality, health and safety throughout the execution of the Contract.

(1) The Contractor shall test and qualify such personnel and provide them with formal written confirmation of their training, testing and academic, educational or vocational qualification, with copies provided to the Engineer if so requested by the Engineer.

(2) Outline of such training shall be submitted with the Bid Stage Safety Plan. Details of the training shall be further developed in the Baseline Safety Plan and onward.

(3) Skill Training may be omitted in full or in part for any Contractor's Personnel who, the Contractor has ascertained, hold valid academic, educational or vocational qualification and who are appropriately skilled and experienced in their respective trades or occupations in full compliance with GC 6.9 [*Contractor's Personnel*]. The Contractor shall report the names of any such Contractor's Personnel to the Engineer for his information.

1.21.3 Further Training of Operation Leaders and Skilled Workers

(1) Unless otherwise specified in the Particular Safety Specification and without limiting or changing the Contractor's obligations under the Contract, the Contractor shall be required to select candidates from his local skilled and unskilled workforce that he considers are suitable to act as future Operation Leaders and skilled workers, respectively.

(2) Training of Operation Leaders

(a) The Contractor shall ensure that his personnel work closely with and transfer necessary knowledge and skills via OJT to such candidates to develop their management abilities, skill levels and awareness of international safety and quality standards; and

(b) To compliment the OJT, the Contractor shall provide classroom-based training courses and assign qualified instructors to develop the ability, skills and awareness and also to pass on their knowledge in future to their working colleagues and compatriots.

(3) Training of Skilled Workers

(a) The Contractor shall ensure that his personnel work closely with and transfer

necessary knowledge and skills via OJT to such candidates to develop their skill levels and awareness of international safety and quality standards; and

(b) To compliment the OJT, the Contractor shall provide classroom-based training courses and assign qualified instructors to develop the ability, skills and awareness according to the work and also to pass on their knowledge in future to their working colleagues and compatriots.

(4) The Contractor shall develop the syllabus and teaching hours appropriately and submit details to the Engineer for his information. Wherever appropriate, the syllabus shall also include health and safety training to an international level of appreciation with a general introduction to OSHA and other applicable international safety standards and regulations.

1.21.4 Unless otherwise specified in the Particular Safety Specification, the Contractor shall not bring into the Country for use upon the Works any unqualified, unskilled or inexperienced foreign Contractor's Personnel.

1.22 DANGEROUS WORK

1.22.1. Examples of Dangerous Work

For clarity "Dangerous Work" shall also include the following examples:

(1) The delivery, storage and/or use of harmful, dangerous or explosive materials, chemicals, gases or the like to be used in the Works or for use in or which are the product of the manufacturing or treatment process of the finished Works or in Operational Areas.

(2) Welding work, hot cutting work or demolition work.

(3) Work in areas where Contractor's Personnel are already performing work that may become more hazardous if anyone other than authorised personnel enter, for example Scaffolding erection, use and dismantling, and areas where Contractor's Equipment is operating and the HSO considers there to be a risk of any accident.

(4) Work in areas where very hot or cold objects are being handled and/or the working area itself is extremely hot or cold.

(5) Work in areas where there is potential exposure to harmful radiation or ultrasound.

(6) Work in areas where the concentration of gases, dust and any other dangerous or harmful materials exceed the limits specified in JSSS 2.1 [*Work Environment*].

(7) Work in areas where Permanent Works or Temporary Works have not been performed completely or properly and/or which are therefore unsound, unstable or unsafe.

(8) Work in areas under, within or adjacent to existing buildings, roads, bridges or other structures which are unstable and/or unsafe and which pose risks to safety unless additional support and strengthening measures are implemented.

(9) Work in areas which may have been damaged and otherwise rendered dangerous by adverse climatic, natural or seismic conditions.

1.22.2. Particular care shall be taken by the Contractor when performing any Dangerous Work.

1.22.3. Contractor's Personnel who are to perform or be involved at the Site in the performance of Dangerous Work, in addition to the usual safety induction training, shall be given further special training according to the nature of the Dangerous Work upon which they are to be engaged so that they can safely perform such work.

1.22.4. The HSO shall check and certify that each of the trained workers are authorised to be engaged upon particular types of Dangerous Work, by issuing an official permit in accordance with JSSS 1.23 [*Permit to Work System – Dangerous Work*] that is to be worn conspicuously and be available for validation by the Engineer.

1.22.5. The HSO shall ensure where Dangerous Work is to be performed, that preparatory pre-work

inspections are carried out to investigate and assess the work to be performed and ascertain the conditions likely to be encountered. Such inspection work shall be carried out by specially trained personnel. The Contractor shall prepare safety procedures to ensure that any such inspection personnel are not placed at risk because of any unsafe environmental or other adverse or dangerous conditions.

1.22.6. A specially trained Operation Leader shall always be assigned to work full-time with every worker or team of workers engaged upon Dangerous Work.

1.22.7. The Contractor shall train and equip teams of selected workers at the Site for emergency rescue operation in accordance with JSSS 1.24 [*Accident Response Plan*].

1.22.8. The Contractor shall prepare and implement procedures for effective safety control of Dangerous Work. Such procedures may include zoning arrangements whereby different degrees of risk are separately categorised into different levels of requirement. The contents of this shall be included in the Method Statement and Safety Plan.

1.22.9. Signage shall clearly describe the Dangerous Work and state the reasons why the area is dangerous.

1.22.10. For measures for prohibiting entry, methods of demarcation and further definition of Dangerous Work, refer to JSSS 2.3 [*Prohibition of Entry*].

1.22.11. Hazardous Substances.

(1) If the Contractor during the execution of the Works, encounters and is required by the Particular Safety Specification or instructed by the Engineer to remove any Hazardous Substances (for example: asbestos and similarly dangerous or hazardous materials), the Contractor shall employ suitable specialists that are appropriately and specifically qualified, skilled and experienced in the safe and environmentally acceptable removal and disposal of the Hazardous Substances.

(2) The Contractor shall submit Safety Plans and Method Statements with respect to the removal and disposal of the Hazardous Substances to the Engineer in accordance with JSSS 1.7 [*Contractor's Safety Plans*] and JSSS 1.9 [*Contractor's Method Statements*].

1.23 PERMIT TO WORK SYSTEM – DANGEROUS WORK

1.23.1 The Contractor shall prepare and implement a "Permit to Work System" and a description of this shall be included in the Safety Plan.

1.23.2 The system shall be designed to control safety for Dangerous Work.

1.23.3 The system shall ensure that all foreseeable risks have been considered and that the required control measures for safe working have been implemented before any specific work is permitted to proceed.

1.23.4 Permits shall certify that workers are protected when they perform and workers shall sign the permit and register to show that they understand the risks and the precautions necessary.

1.23.5 The HSO shall assess the work and check safety at each stage and manage the Permit to Work System.

1.24 ACCIDENT RESPONSE PLAN

1.24.1 The Contractor shall be responsible for responding to and treating accidents at the Site in an efficient and dedicated manner with the provision of rescue and treatment services using trained personnel with experienced and qualified medical staff and adequate and equipped facilities at the Site.

1.24.2 Medical, first aid and related services and facilities at the Site for accidental injuries shall be made available free of charge for Contractor's and Employer's Personnel. If so specified in the Particular Safety Specification, such services and facilities shall also be made available free of charge for the family members of such Contractor's and Employer's Personnel.

1.24.3 The Contractor shall prepare an Accident Response Plan as a part of the Safety Plan.

1.24.4 The Contractor shall provide the following medical and first aid services and facilities on the Site:

(1) Appropriate first aid appliances, aids, instruments and medicines.

(2) Trained first aiders.

(3) Communication facilities and measures for Emergency Response.

(4) Medical facilities on the Site together with suitable medical equipment and consumables.

(5) Temporary water and power supply to maintain use during mains supply failure.

(6) Transportation to be provided to efficiently and carefully transport casualties to medical facilities on the Site or hospitals off the Site.

(7) Additional facilities specified in the Particular Safety Specification, if any.

1.24.5 Where the Site is located at an excessive distance from urban areas and/or where there is a lack of immediate availability of medical services and facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site to comply with his obligations as specified in the Particular Safety Specification and as are necessary to fully protect all relevant personnel.

1.24.6 The Contractor shall train selected Contractor's Personnel to perform emergency rescue in a safe manner in the event of any accident. Workers so trained are called upon in the event of any emergency to rescue any person(s) who may become trapped or injured or otherwise affected or incapacitated and provide suitable, specialist and appropriate first aid treatment. They shall be allowed to continue with their normal work when not required for emergency rescue.

1.24.7 Rescue equipment shall include respiratory protective equipment for rescue operations, where the nature of the Works would dictate, safety extraction belts/harnesses/ropes.

1.24.8 Workers trained for emergency rescue, in addition to normal first aid treatment, shall be trained to Cardiopulmonary Resuscitation (CPR) and also to operate an Automatic External Defibrillator (AED) in accordance with the requirements of JSSS 2.9 [*PPE and First Aid*].

1.24.9 Adequate first aid equipment and supplies shall in any case be readily available at the Site and as referred to in JSSS 2.9 [*PPE and First Aid*].

1.25 MEASURES AT THE TIME ACCIDENTS OCCUR

1.25.1 When an accident occurs, the HSO shall immediately discontinue the concerned work, inform the Engineer and take all efforts to:

(1) Safely locate and extract casualties.

(2) Provide first aid treatment at the Site.

(3) Implement Secondary accident prevention activities, including:

(a) Preserving the accident site, make safe and prohibit any personnel to engage in rescue activities who are not trained to do so;

(b) Discontinuing construction work related to or in the vicinity of the accident; and

(c) Implementing any further measures instructed by the Engineer.

1.25.2 Report of Accident Occurrence, Cause, Investigation, Result and Recurrence, Prevention Measures.

(1) At occurrence of any accident, the HSO shall promptly inform the Engineer and thereafter submit details of the accident within twenty-four (24) hours after its occurrence.

コメントの追加 **[SS28]:** 5. (18)

コメントの追加 **[SS29]:** No. 18
JICA commented "the Site" is defined in JSSS1.2.2(5) the Site, shall also be deemed to include other places (if any) where the Contractor intends to execute or is executing the Works including for example offsite storage, fabrication and assembly areas and any other working areas outside the Site boundary.

NK agreed to leave on the Site because the Site include places outside of the Site.

コメントの追加 **[MJD30R29]:** No further comment

コメントの追加 **[SS31R29]:** Confirmed.

コメントの追加 **[SS32]:** 6. (20)

コメントの追加 **[SS33]:** No. 20
JICA want to write full spelling of these abbreviation at first come out even though they are provided in Annex. There is statement like Toolbox Meetings (TBM) in 1.15.2 (1) (a), so NK agreed JICA's request.

コメントの追加 **[MJD34R33]:** No comment will change

コメントの追加 **[SS35R33]:** Confirmed.

(2) Having investigated and established the cause of any accident, the HSO shall report the detail and conclusion of the investigation as soon as practicable.

(3) The accident report shall include details of the counter-measures to prevent any reoccurrence and shall be in the format included in JSSS Annex 1.3 [*Additional Contractor Forms*].

1.25.3 For resumption of work procedures, refer to JSSS 1.14 [*Procedure for Resuming the Works*].

1.26 EMERGENCY RESPONSE PLAN

1.26.1 To the extent reasonably possible, the Contractor shall keep himself fully informed at all times of likely forecasted climatic conditions, from TV, radio and internet and shall be aware when heavy winds, storms, rainfall or snowfall and electrical storms or other adverse climatic conditions are likely and can be reasonably anticipated.

1.26.2 The Contractor shall take all necessary measures to protect Contractor's Personnel, the Works and all Goods for incorporation therein from injury or damage caused by any such adverse climatic conditions, and to avoid, overcome or lessen the effects to a reasonable extent.

1.26.3 The Contractor shall keep all areas of the Site, free from surface water and ground water at all times and by whatever means are necessary. This shall include all newly exposed ground surfaces, excavated areas and/or excavations for structures, piling, trenches, pits, shafts, tunnels and the like, as necessary to ensure:

(1) The safety of all persons entitled to be on the Site, whether engaged in construction operations or otherwise on or in the vicinity of or adjacent to the Site.

(2) The safety and stability of the Works and Goods.

(3) The safety and stability of all ground surfaces, excavated areas and/or excavations for structures, piling, trenches, pits, shafts, tunnels and the like, to prevent landslides due to surface and/or underground water from rainfall and snowmelt, tidal water, ground water and any changes in ground water level, river or stream erosion, human activity and the like.

1.26.4 Where, due to the location of the Site, there is a risk of flooding, earthquake or volcanic activity, the Contractor shall take measures to prevent damage including damage from landslides and consequent injury, damage from such flooding, earthquake or volcanic activity.

Such measures to be implemented shall include:

(1) Avoiding the use of permanent or temporary earth dams, enclosures, containment structures, spoil heaps or the like where the effect of the above described climatic, seismic or volcanic conditions could weaken or destroy such structures and potentially create the consequent risk of danger to all relevant persons, including third parties and property not connected with the Works but potentially affected thereby.

(2) Provision of temporary support to all sides and soffits of excavations or portal of tunnelling of sufficient strength, durability and suitability.

(3) Provision of sufficient temporary drains and drain trenches to assist the flow of water and any further measures to prevent the effect of water entry to the Works, including pumping and provision of power for such measures.

1.26.5 Measures as required by the above shall be described by the Contractor in the Method Statements.

1.26.6 The Contractor shall prepare an Emergency Response Plan as a part of the Safety Plan.

1.26.7 The Emergency Response Plan, shall cover:

(1) Evacuation plan, showing evacuation routes and assembly points.

(2) Emergency communication facilities such as telephones, radios, transceivers,

loudspeakers, sirens, etc. Such facilities shall be inspected by the HSO and maintained at all times so that they can be utilised in any emergency.

(3) Emergency contact system.

(4) Use of existing and available medical and other related facilities.

(5) Emergency stocks of bottled water, lights, ropes, shovels.

The Contractor shall provide and maintain in a state of readiness such equipment described above, that will remain useable in the case of an emergency. Where applicable sufficient back-up power shall be provided when power may be knocked out, long-life batteries, power generators with fuel capacity to allow long term use and the like.

1.26.8 The emergency contact system shall describe measures for quickly establishing locations and methods of contact with a listing of the persons, organisations and departments, that need to be located and contacted in the event of an emergency.

The list shall be posted in a visible location in the Contractor's Site office with a copy in the Employer's and Engineer's Site offices so that all personnel are informed.

The emergency contact list shall include name(s) of the person(s) responsible for making the contact, relevant contact persons, all with their respective telephone numbers and where relevant their radio contact.

The list shall include contact details and any further relevant information for the following parties, and define the extent to which contact is to be made in accordance with the type of emergency:

(1) Employer's Personnel at the Site and also at their respective head office.

(2) Relevant government authorities and agencies, administrative agencies, police stations, ambulance and fire stations, and the like.

(3) Contractor's Personnel at the Site and also at the head office.

(4) Subcontractors personnel and the personnel of any other contractors or suppliers at the Site and also at the head office.

1.26.9 Unless otherwise specified in the Particular Safety Specification, the Contractor shall conduct Emergency Response training based on the Emergency Response Plan at least every six (6) months, including training all personnel at the Site on evacuation plan and emergency contact system.

Details of the training shall be included as a part of the Emergency Response Plan and included with the Safety Plan.

1.26.10 If and when an emergency occurs, the Contractor shall share necessary information amongst prescribed persons on the emergency contact list described above and take appropriate measures including work discontinuation, evacuation of workers, making the Works, all premises and Contractor's Equipment safe, etc., all as circumstances reasonably permit and as instructed by the Engineer.

1.27 CONTRACTOR'S SAFETY COMMITTEE AND REGULAR SAFETY MEETINGS

1.27.1 The Contractor shall create an internal Safety Committee to assist with promoting and maintaining effective health and safety management.

1.27.2 Members of the Contractor's Safety Committee shall include:

(1) Contractor's Representative.

(2) HSO.

(3) Medical and first aid staff.

(4) Contractor's senior site staff.

(5) Contractor's head office safety manager (as necessary).

(6) Subcontractors' representatives, health and safety personnel, site staff.

(7) Representative of labour union, if any.

(8) (If necessary) Representatives of the relevant government authorities and agencies.

(9) Any other necessary personnel.

1.27.3 The HSO shall be the chairperson of the Safety Committee.

1.27.4 The Contractor shall arrange regular Safety Committee Meetings for the purpose of sharing information regarding health and safety management among the Contractor's Personnel:

(1) Frequency of the meetings: At least once a month (until issue of the Taking-Over Certificate of the entire Works).

(2) Agenda:

(a) Accidents, fatalities, injuries occurred in the previous month and measures to be taken to prevent any reoccurrence;

(b) Monthly or weekly schedule of important health and safety matters;

(c) Feedback on the regular safety, coordination and other meetings with the Engineer;

(d) Safety instructions received from the Engineer;

(e) Items to be coordinated with police, fire department and other related organisations;

(f) Compliance and registration requirements under the Laws of the Country;

(g) Safety and health awards, media attention and the like;

(h) Hazards, safety and health problems identified by any members of the Safety Committee;

(i) Effectiveness of existing Safety Plans and suggestions for revision and improvement; and

(j) Other matters.

1.27.5 Report on the Safety Committee Meetings

The HSO shall prepare a report summarising the concerns raised and conclusions of all items listed in the agenda as above.

A copy of this report shall be submitted to the Engineer within seven (7) days after the meeting and a further copy shall be included in the Contractor's monthly progress report.

1.28 ENGINEER'S REGULAR SAFETY MEETINGS

1.28.1 The Engineer will arrange and host a regular safety meeting to be attended by representatives of the Employer and the Contractor for the purpose of sharing information regarding health and safety management among the representatives of the Employer and the Contractor. Parties present shall have the authority to represent the organisation they belong to on health and safety matters:

(1) Frequency of the meetings: Once a month (until issue of the Taking-Over Certificate of the entire Works).

(2) Agenda:

(a) Effectiveness of existing Safety Plans and suggestions for revision and

improvement;

(b) Monthly or weekly schedule of important health and safety matters;

(c) Accidents, fatalities, injuries in the previous month and measures to be taken to prevent any reoccurrence;

(d) Hazards, safety and health problems identified by any members of the Safety Committee;

(e) Status of resolution of previous problems;

(f) Items to be coordinated with police, fire department and other related organisations;

(g) Compliance and registration requirements under the Laws of the Country; and

(h) Safety and health awards, media attention and the like.

1.28.2 Report on the Engineer's Regular Safety Meetings:

(1) The Engineer shall prepare a report summarising the concerns raised and conclusions of all items listed in the agenda as above.

(2) A copy of this report shall be submitted to the Contractor and Employer within seven (7) days after the meetings.

(3) A further copy shall be included in the Engineer's Monthly Report submitted to the Employer.

(4) The Contractor shall act immediately upon any oral instruction which is a consequence of the Contractor's failure to comply with his obligations under the Contract.

(5) The Engineer shall issue a formal instruction for any variation requests.

1.29 PROJECT SAFETY COMMITTEE

1.29.1 On larger Projects with multiple contract packages, if so stated in the Particular Safety Specification, the Employer shall create a Project Safety Committee for the purpose of ensuring mutual understanding and effective implementation of health and safety management of the entire Project.

1.29.2 Unless otherwise agreed, the members of the Project Safety Committee shall include:

(1) The Employer.

(2) The Engineer(s).

(3) The Contractor's Representative(s) and HSO.

(4) Representatives and health and safety officers of all contractors.

1.29.3 The chairperson of the Safety Committee shall be the Employer.

1.29.4 The Project Safety Committee meetings periodically takes place as requested by the Employer. The Contractor shall participate in the same whenever requested by the Employer until issue of the Taking-Over Certificate of the entire Works.

1.29.5 The Employer shall prepare a report summarising the concerns raised and conclusions of all items discussed at the Project Safety Committee Meeting.

1.30 HEALTH AND SAFETY COORDINATION WITH OTHER CONTRACTORS

1.30.1 Refer to GC 2.3 [*Employer's Personnel*] and GC 4.6 [*Co-operation*] regarding the respective obligations and requirements for the Contractor regarding co-operation with:

(1) The Employer's Personnel.

(2) Any other contractors employed by the Employer.

(3) The personnel of any relevant authorities.

In relation to the above, the Employer shall ensure that all of the above personnel and contractors co-operate with the Contractor's efforts and that they take actions similar to those that the Contractor is required to take under relevant parts of GC 4.8 [*Safety Procedures*] and GC 4.18 [*Protection of the Environment*].

The Contractor shall provide sufficient information to the Employer who shall then ensure that all of the above personnel and contractors are fully informed of the Contractor's Safety Plan and that their personnel comply with the Contractor's Safety Plan.

When preparing the Safety Plan, the Contractor shall identify the hazards and assess the risks of all aspects. To do this properly, information (including Method Statements, risk assessments and safety plans) may be needed from other contractors who will be working at the Site. The Employer shall therefore ensure that the Contractor is provided with all such other information as may be requested by the Contractor necessary so that this can be incorporated into the Safety Plan.

When risks arise because of potential interactions between the Contractor and other personnel or contractors (e.g. site transport matters) or a number of contractors are exposed to a common risk (e.g. from the site electrical distribution system), the Employer shall instruct these other contractors to adopt the same principles of risk prevention and control that are applied by the Contractor unless otherwise agreed.

1.30.2 If any other contractors are employed by the Employer and are working on or near the Site of any work, the Employer shall arrange and host Health and Safety Coordination Meetings:

(1) Frequency of the meetings: as and when considered necessary by Engineer.

(2) Unless otherwise agreed, attendees shall include representatives of the Employer, Contractor and any other contractors employed by the Employer and relevant authorities who are concerned with the execution of any work on or near the Site not included in the Contract.

(3) Agenda should relate to coordination among different contractors including for example:

(a) Effectiveness of existing Safety Plans and suggestions for revision and improvement;

(b) Issues, problems and response due to the mutual impact of the work of the Contractor, Employer's Personnel, the Employer's other contractors and the works of any relevant authorities;

(c) Accidents, injuries in the previous period and measures to be taken to prevent any reoccurrence;

(d) Status of resolution of previous problems;

(e) Items to be coordinated with police, fire department and other related organisations;

(f) Compliance and registration requirements under the Laws of the Country;

(g) Safety and health awards, media attention and the like; and

(h) Other matters.

1.30.3 Report on the Health and Safety Coordination Meetings:

(1) The Employer shall prepare a report summarising the concerns raised and conclusions of all items listed in the agenda as above.

(2) This report shall be submitted to the Engineer, Contractor and other attendees within seven (7) days after the meeting.

(3) A further copy shall be included in the Contractor's monthly progress report.

1.31 SAFETY STATISTICS

1.31.1 The Contractor shall collect and compile statistical data for safety performance on the Works in order to permit monitoring of achievement and prevention of reoccurrence of accidents, near-misses and the like, therefore contributing to the improvement of safety on the Works.

1.31.2 Actual statistics shall include the following:

(1) Accident: description, casualties, location, time, type and cause.

(2) Near-miss: description, location, time, type and cause.

(3) Lost-time: lost hours of casualties, duration of discontinuation.

(4) Total working hours for calculation of frequency rate, severity rate and annual incident rate.

(5) Number of users of the first aid station, number of people treated for disease/injury, description of disease/injury, causes.

(6) Number of health and safety staff.

(7) Number of candidates given safety induction and other training.

(8) Number of safety inspections.

(9) Number of detections of non-compliant, unsafe or lack of Contractor's Equipment.

(10) Number of instructions issued for failure to use PPE, or inadequate or ineffective PPE.

(11) Number of Engineer's Instructions issued for work suspension.

(12) Number of HSO instructions issued for work stoppage.

(13) Others.

1.31.3 All data shall be in a format and content given consent by the Engineer.

1.31.4 The data shall subsequently be compiled and included in the Contractor's Monthly Safety Report to be submitted under JSSS 1.33 [*Safety Reports*].

1.32 HEALTH AND SAFETY RECORDS

1.32.1 The Contractor shall keep health and safety records for the following:

(1) Inspection records and checklists.

(2) Meetings for safety and health management.

(3) Monitoring of safety and health management activities.

(4) Health and safety education and training for the Contractor's Personnel.

(5) Health management for the Contractor's Personnel, documents regarding workers' health conditions (such as medical history and medical examination results) shall be stored in compliance with the Laws of the Country.

(6) Work environment records and other records required by JSSS 2 [*General Safety Measures*] and other parts of JSSS.

(7) Record of reports as may be required by government authorities.

(8) Detection of non-compliant, unsafe or lack of Contractor's Equipment.

(9) Instructions issued for unsafe behaviour or unsafe site conditions.

(10) Instructions issued for failure to use PPE, or inadequate or ineffective PPE.

(11) Engineer's Instructions issued for work suspension.

(12) HSO instructions issued for work stoppage.

(13) Others.

1.32.2 All records shall be in a format and content given consent by the Engineer and all shall be made available for inspection by the Engineer.

1.32.3 A summary of the above records shall be submitted to the Engineer as a part of the Contractor's Monthly Safety Report to be submitted under JSSS 1.33 [*Safety Reports*].

1.33 SAFETY REPORTS

1.33.1 The Contractor shall provide regular safety reports to the Engineer to keep him fully informed of compliance with the Safety Plan and all matters of health and safety. Reports shall include:

(1) Daily Safety Report: number of workers, works in progress (outline), statistical results in accordance with JSSS 1.31.2, near-misses/incidents/accidents, safety findings, actions taken, for improvement.

(2) Contractor/HSO and Joint Site Safety Inspection Reports.

(3) Weekly Safety -Report: summary of safety matters of the week.

(4) Monthly Safety Report: summary of safety matters for the month, monthly and cumulative safety statistics. The Monthly Safety Report shall be submitted as a part of the Contractor's monthly progress report, required by GC 4.21 [*Progress Reports*].

1.34 HEALTH AND SAFETY INCENTIVE SCHEMES

1.34.1 The Contractor shall consistently enforce work rules (whether or not an injury or illness is reported) to demonstrate his commitment to creating a culture of safety, not just the appearance of reducing rates. Action should not be taken to penalise any worker for reporting a work-related injury or illness rather than for the purpose of promoting workplace safety.

1.34.2 It is considered that incentive schemes are an important tool to promote an improvement in workplace health and safety and the Contractor is therefore required to develop and implement such health and safety incentive schemes.

1.34.3 It is suggested that workers should be rewarded for reporting near-misses or hazards, as this promotes worker involvement in the health and safety management process.

1.34.4 Consideration should also be given to rate-based incentive schemes which concentrate on reducing the number of reported injuries and illnesses by rewarding workers with certification and/or prizes or bonuses at the end of an injury-free period and which also could reward Operation Leaders or managers based on the elimination of injuries within their respective teams.

1.34.5 Any scheme must however be implemented in such a manner that it does not discourage reporting by workers, such as taking negative action against a worker by withholding a prize or bonus because of a reported injury.

1.34.6 The Contractor shall introduce adequate precautions to ensure that workers feel free to report an injury or illness.

1.34.7 As an alternative to rate-based incentive schemes, incentive schemes that take positive steps to emphasise safety, not just incident rates are often useful such as schemes that reward workers for identifying potentially unsafe, dangerous or hazardous conditions on the Site.

1.34.8 The Contractor shall describe the proposed health and safety incentive scheme in the Safety Plan and shall also inform the Employer and Engineer about the progress and achievement of such schemes through their Monthly Safety Report submitted under JSSS 1.33 [*Safety Reports*].

1.35 CONTRACTOR'S EQUIPMENT, TEMPORARY WORKS, SAFETY EQUIPMENT AND PPE

1.35.1 Contractor's Equipment, Temporary Works, Safety Equipment and PPE to be used upon the Works, (for example electrical systems, welding and cutting equipment, Scaffolding, Formwork and Falsework, etc.) together with all components, systems, materials and equipment, safety equipment and PPE (referred to collectively in this Clause as Contractor's Equipment and Temporary Works), shall be suitable and fit for the purpose for which they are intended.

All shall be used in full accordance with the manufacturer's printed instructions or accepted industry practice and shall be used, stored, handled, assembled, erected, installed, maintained and dismantled by qualified, skilled, specially trained and experienced personnel.

1.35.2 The Contractor shall ensure that all items of Contractor's Equipment and Temporary Works for use upon the Works are inspected by the HSO at the required location before the commencement of any operation or use and regularly inspected thereafter to ensure continued compliance with the foregoing. Following any such inspection, all tested items shall be labelled by the Contractor with clear, durable and weatherproof labels confirming the last/current date of inspection, date of next inspection and signed by the HSO, thereby certifying the items as being safe for use.

If the HSO ascertains at any time that any items are not suitable for use, he shall immediately stop all use of that item, label the item as not being safe for use, stop all work for which that item and any associated items is being used and cease any such work until the situation is corrected by repair, re-testing and certifying. Similarly, the Engineer may issue instructions to stop all use of any item and stop all work for which that item and any associated items is used when it is discovered that the certification is not available or is not currently valid.

1.35.3 The Engineer may also instruct that any Contractor's Equipment and Temporary Works shall be subjected to examination, inspection, measurement or testing, by the Contractor at the expense of the Contractor. The Contractor shall submit the report of such examination, inspection, measurement or testing to the Engineer.

If, as a result, any such Contractor's Equipment and Temporary Works is found to be defective, or otherwise not in accordance with JSSS or the Contract, the Engineer may reject such Contractor's Equipment and Temporary Works by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the defect and ensure by repair/replacement as necessary and re-testing that the rejected item(s) complies with the Contract.

1.35.4 As confirmed in Form JSSS/BSD Bidder's Safety Declaration (refer to JSSS Annex 1.3 [*Additional Contractor Forms*]), the Contractor shall mobilise for use upon the Works:

(1) New or recent Personal Protective Equipment (PPE) and other safety equipment of an international standard, suitable and fit for the purpose for which it is intended, in full working order, complete with all necessary spare parts and consumables, suitable and safe for use on the Works, all to meet with the consent of the Engineer and in sufficient quantities to allow for replacement in the case of being worn-out, lost or damaged.

(2) New or recent Contractor's Equipment and Temporary Works, all suitable and fit for the purpose for which it is intended, in full working order, clean, non-polluting, complete with all necessary spare parts and consumables, suitable and safe for use on the Works.

1.36 HEALTH MATTERS

1.36.1 The Contractor is reminded of his obligations under GC 6.7 [*Health and Safety*] to take all reasonable precautions, at all times to maintain the health of the Contractor's Personnel and ensure that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics. Under other Clauses of the Contract, the Contractor is required to protect the Contractor's Personnel from insect and pest nuisance, and to take other measures to reduce danger to their health.

1.36.2 Healthcare services and facilities at the Site shall be made available free of charge for Contractor's and Employer's Personnel. If so specified in the Particular Safety Specification,

such healthcare services and facilities shall also be made available free of charge for the family members of such Contractor's and Employer's Personnel.

1.36.3 Occupational health care shall be provided by the Contractor and shall include:

(1) Environmental health care with consideration and precautions against asbestos, dust, lead and other metals, gases, hazardous and toxic chemicals, sunlight, engine exhaust emissions, (refer also to JSSS 2.1 [*Working Environment*]).

(2) Measures against noise, frequent or excessive use of vibrating tools.

(3) Avoiding frequent or excessive manual handling of loads, stress and fatigue.

(4) Fitness to work based on the physical mobility and capability of the Contractor's Personnel.

1.36.4 The Contractor shall prepare a Health Care Plan as a part of the Safety Plan including, descriptions and where necessary details or quantities of:

(1) Health care staff to be assigned at the Site.

(2) Provision of anti-mosquito measures including nets, medications and the like in malarial prone areas.

(3) Healthcare services to be provided including lectures and education on health matters.

(4) Healthcare treatment facilities and medicines on the Site together with description of equipment and consumables.

(5) Occupational healthcare proposal.

(6) Temporary water and power supply to maintain use during mains supply failure.

1.36.5 Where the Site is located at an excessive distance from urban areas and/or where there is a lack of immediate availability of healthcare services and facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional healthcare services and facilities at the Site to comply with his obligations as specified in the Particular Safety Specification and as are necessary to fully protect all relevant personnel.

1.36.6 Report of Serious Illness

(1) The Contractor shall inform the Engineer and submit details of any serious illness.

(2) Having investigated and established the cause of any serious illness, the Contractor shall report the detail and conclusion of the investigation as soon as practicable to the Engineer.

(3) The report shall include details of the HSO's recommended counter-measures.

(4) The Engineer is to be consulted on the types of illness for which reports are to be informed.

1.37 DESIGN AND MANAGEMENT OF TEMPORARY WORKS

1.37.1 Unless otherwise specified in the Particular Safety Specification, the Contractor is required to comply with Sections 1 and 2 of BS5975: Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework as management standard with respect to design, erection, use and dismantling of Temporary Works.

1.37.2 An alternative standard is acceptable by reference to JSSS 1.4.5 [*Specified Standards*] providing that the proposed alternative also contains equivalent or higher standards for the management of Temporary Works.

1.37.3 It is to be noted that Sections 1 and 2 of BS5975 constitutes guidance and recommendations and it is not quoted herein as if it constitutes a specification or an integral part of JSSS. The Contractor shall however justify in writing any course of action that deviates from the

recommendations of Sections 1 and 2 of BS5975 and shall submit such justification to the Engineer for his information and consent.

1.37.4 It is to be noted that certain design standards included or referred to in the BS (for example wind loadings), are restricted to use in the United Kingdom, in which case the Contractor shall be assumed to have adopted the design standards applicable in the Country.

1.37.5 The Contractor shall prepare and implement suitable procedures whereby all Temporary Works staff during the course of their work and on completion shall prepare and sign formal records of all Temporary Works under their management and control, thereby certifying that all has been performed, completed and validated in accordance with Sections 1 and 2 of BS5975. All such records shall be in a format and content subject to the consent of the Engineer and all shall be made available for inspection by the Engineer.

1.37.6 Without affecting the Contractor's responsibilities for design of the Temporary Works, the Engineer shall cooperate with the Contractor's Temporary Works staff and shall provide pertinent information about the design of the Permanent Works which may be of relevance and assistance to the Contractor with the Temporary Works design.

The Contractor shall submit Method Statements for any parts of the Temporary Works (including designs and calculations of Falsework) as may be requested by the Engineer for his review in accordance with JSSS 1.9 [*Contractor's Method Statements*]. If the Engineer chooses to review same, this shall not be construed as a check or validation of the Contractor's design or methods.

The Engineer may review Temporary Works design for those parts which he considers to be of vital importance for safety. The Contractor shall cooperate and work with the Engineer on this task to demonstrate that the Contractor has systems in place to ensure compliance with Sections 1 and 2 of BS 5975 or any other acceptable standard in accordance with JSSS 1.37.2.

1.37.7 For further information on monitoring the performance of Temporary Works, refer to JSSS 6.1.3. [*Monitoring ~~the Performance of Temporary~~ ~~Works~~*].

コメントの追加 **[MJD36]:** Heading changed

1.37.8 Irrespective of any legal requirement under the Laws of the Country, all of the Contractor's Temporary Works staff shall have appropriate academic, educational or vocational qualification for Temporary Works coordination, design or supervision as appropriate. Such staff shall also have work experience in construction and in Temporary Works design or supervision as appropriate. The Contractor shall ascertain for himself that all such staff are qualified to perform their duties.

1.38 UNEXPLODED ORDNANCE (UXO)

1.38.1 If there is a possibility that any UXO may exist at the Site, then unless otherwise specified in the Particular Safety Specification, this shall be surveyed and investigated by the Employer and the result of this investigation shall be clearly stated and full information including survey and investigation results shall be provided by the Employer in the Particular Safety Specification.

1.38.2 Unless otherwise specified in the Particular Specification, clearance of UXO shall be undertaken by the Employer and at the cost of the Employer.

1.38.3 Completion of clearance shall be evidenced through the issue by the Employer's specialist remover of a certificate of UXO clearance from the Site. Unless otherwise approved by the Engineer, no work shall commence in affected areas of the Site until the receipt of a copy of this certificate.

1.38.4 Should the Contractor encounter any UXO, after a clearance certificate has been issued in accordance with the above, he shall immediately stop all affected work at the affected area of the Site, clear the area of all Contractor's Personnel, Employer's Personnel and all other persons and notify the Engineer and relevant authorities.

1.38.5 Unless otherwise agreed between Employer and Contractor, the Employer shall then make

further arrangements for removal and disposal, then obtain and issue a further clearance certificate. Work shall resume in the affected areas after the Contractor has received a copy if the further clearance certificate together with any further instructions from the Engineer.

ANNEXES TO CHAPTER 1: GENERAL REQUIREMENTS

Annex 1.1: Definitions and Abbreviations

A1.1.1 The following words and expressions in JSSS relating to the Conditions of Contract and the content of JSSS shall have the definitions stated:

(1) "**GC**" followed immediately by a reference number means respectively General Conditions of Contract Clause or Sub-Clause.

(2) "**Health and Safety Officer**" or "**HSO**" means the Contractor's health and safety officer at the Site to be appointed by the Contractor in accordance with GC 6. 7 [*Health and Safety*]. For the purposes of interpretation under JSSS, the reference to "accident prevention officer at the Site" in GC 6.7 [*Health and Safety*], shall be construed as "Health and Safety Officer at the Site".

(3) "**JICA Standard Safety Specification**" or "**JSSS**" means the document of this title published officially by JICA on their website as may be further modified by the Particular Safety Specification for the Works.

(4) "**Method Statement**" means a document that shows the details of the arrangements, methods and resources that the Contractor proposes to adopt for the execution of the Works or any part of the Works, as referred to in GC 4.1 [*Contractor's General Obligations*] and supplemented by JSSS 1.9 [*Contractor's Method Statements*].

(5) **"Operation Leader" (**also known variously as a "Ganger", "Leading Hand", "Foreman" (working and non-working), "Team Leader", "Superintendent", "Supervisor" and the like) means a member of the Contractor's workforce who through experience, training and testing is deemed by the Contractor to be appropriately qualified, skilled and experienced in their respective trade or occupation to work with, lead and/or supervise the teams of workers, directing them and/or superintending them in the performance of their assigned duties and to ensure their compliance with the Contractor's safety regulations and who can also be referred to within the OSHA definition as a "Competent Person".

(6) "**OSHA**" means the technical requirements of the OSHA standard(s) from the Code of Federal Regulations (29 CFR) published by the Occupational Safety and Health Administration, U.S. Department of Labor.

(7) "**Particular Safety Specification**" means the document that contains the particular additions and modifications to JSSS, necessary to create a precise and relevant specification of the health and safety requirements for the Works.

(8) "**Project**" means the particular Works and services to be implemented by the Borrower and described in the loan agreement, utilising the funds provided by JICA under the terms mutually agreed for that purpose.

(9) "**Safety**" shall also mean "occupational health and safety" and "health and safety".

(10) "**Safety Plan**" means a document (or documents) that contains the overall risk assessments together with the details of all health and safety arrangements, methods and resources that the Contractor proposes to adopt for health and safety management of the entire Works or any Section or part of the Works, as referred to in GC 4.1 [*Contractor's General Obligations*] as supplemented by JSSS 1.7 [*Contractor's Safety Plans*].

(11) "**Safety Specification**" means the document that contains Part 1 [*JSSS*] and Part 2 [*Particular Safety Specification*].

A1.1.2 The following words and expressions in JSSS relating to the technical content of JSSS shall have the definitions stated:

(1) "**Accident Response**" means the requirements for the Contractor's response to an accident at the Site, as further referred to in JSSS 1.24 [*Accident Response Plan*].

(2) "**Blasting**" means blowing-up or breaking apart solid rock with the use of Explosives.

(3) "**Blasting Exclusion Zone**" means an area from which all unauthorised Contractor's Personnel, unauthorised Employer's Personnel and any other unauthorised personnel or the general public are prohibited to enter due to the risk of their being affected by the Blasting Works. Unauthorised personnel in this context shall have the same meaning as that stated in JSSS Clause 2.3.1.

(4) **"Confined Spaces"** means spaces that are not designed for continuous occupation but are provided for persons to enter and perform certain works (including inspection, maintenance and repairs) and that consequently may have limited or restricted means for entry or exit. Due to the likelihood of insufficient ventilation, the Contractor shall be aware of a potentially unhealthy or dangerous environment and he shall be deemed to have investigated and taken measures against such risks in every case.

(5) **"Cofferdam"** means a temporary enclosing wall constructed in water, to permit the enclosed area to be pumped out and used as safe and accessible working space.

(6) **"Dangerous Goods"** means corrosive, flammable, explosive, spontaneously combustible, toxic, oxidising, or water-reactive materials. They must be identified in the workplace (and when being transported) by different coloured 'diamond' symbols. classified on the basis of immediate physical or chemical effects, such as fire, explosion, corrosion and poisoning. An accident involving Dangerous Goods could seriously injure persons and seriously damage property and/or the environment.

(7) **"Dangerous Work"** means Permanent or Temporary Works to be executed by the Contractor in Confined Spaces, Hazardous Areas, or Operational Areas or in the presence of or requiring the use of Hazardous Substances or Dangerous Goods or other work which is especially and potentially dangerous and which requires the use of specialist skills, safety equipment, safety measures and PPE.

(8) "**Designated Person-in-Charge**" or "**DPIC**" means a senior member of the Diving Team who, through qualification, experience and capability is deemed by the HSO to be qualified to be in charge of all aspects of the Diving Operation including those affecting the safety and health of members of the Dive Team.

(9) "**Dive Team**" means Divers, support assistants and workboat crew who are involved in any Diving Operation, including the Designated Person-in-Charge.

(10) "**Diver**" means a worker working in water using underwater breathing apparatus which supplies compressed breathing gas at the ambient pressure.

(11) "**Diving Operation**" means one (1) single diving activity for one (1) Diver or a team of Divers commencing from the time when the first Diver enters the water and extending until the last Diver has left the water, chamber or other environment in which the dive, or any part of the dive, took place and has completed any requisite decompression procedures, including, where it may be reasonably anticipated that this will be needed, any therapeutic recompression. The nature and size of any Diving Operation shall be such that it can be safely supervised by one (1) person.

(12) "**Diving Works**" means a part of the Works consisting of one (1) or more Diving Operations.

(13) "**Earthwork Support**" means the permanent or temporary structural support arrangements to prevent the collapse or weakening of the surfaces of any excavation including for example basement, pit, trench or slope excavation.

(14) "**Elevated Access Structures**" means substantial, elevated, temporary working platforms, usually comprised of structural steel columns, beams, framing and floor decking and used for performing works on Sites with difficult access or restricted space, on steeply sloping or Sites in water.

(15) "**Emergency Response**" means the requirements for the Contractor's response to any Emergency at the Site or Sites, as further referred to in JSSS 1.26 [*Emergency Response Plan*].

(16) "**Explosives**" means any substance or mixture of substances that is manufactured to produce an explosive effect and which term includes any Blasting explosive, Blasting agent and Blasting supplies such as detonators, cords and detonating equipment.

(17) "**Falling Objects**" means objects falling from heights including displaced, dropped, or blown Goods, tools, debris or waste material.

(18) "**Falsework**" means temporary supporting structures used to support parts of the Temporary Works or Permanent Works during construction, until the latter are stable, self-supporting and safe.

(19) "**Formwork**" means temporary containment structures for cast-in-place (poured or pumped) concrete and the immediately supporting members in advance of the concrete achieving sufficient strength to support its own weight and act safely as a structural component.

(20) **"Hazardous Areas"** means areas where there is a risk of explosion due to the presence of flammable or explosive gases, vapours, mists or dusts.

(21) **"Hazardous Substances"** means any substance, whether solid, liquid or gas, that may cause harm to health.

(22) "**Hoisting Equipment**" means Contractor's Equipment such as cranes, hoists, chain-blocks, pulleys and the like which constitute the prime mover that, when used with Rigging Equipment, permits loads to be hoisted or lowered and positioned.

(23) "**Hoisting Operation**" means the selection of Hoisting Equipment appropriate to the purpose, preparation of Method Statements and Safety Plans and safely implementing the hoisting and placing of loads in position.

(24) "**Operational Area**" means an area in a functioning process, treatment, manufacturing or like facility where the Contractor is required to perform work while the Employer is continuing operations.

(25) "**Other Properties**" means buildings, structures, ground surfaces and substrata, paved areas, roads, footpaths, fences, railways, waterways, drainage, utilities and other services or the like or any other property on the Site or outside the Site which may be in some way affected by the execution of the Works.

(26) "**Personal Fall Arrest System**" or "**PFAS**" means a fall protection system that is designed to arrest a worker in a fall from a working level.

(27) "**Personal Fall Restraint System**" or "**PFRS**" (also referred to as a "Positioning Device System") means a fall protection system that is designed to restrict the movement of workers, preventing them from reaching the edge of any working area and therefore eliminating the risk of a fall.

(28) "**Personal Protective Equipment**" or "**PPE**" means equipment that is worn by the person to minimise exposure to hazards that cause serious workplace injuries and

illnesses, which may result from Falling Objects, excessive noise, dust, contact with chemical, radiological, physical, electrical, mechanical, or other workplace hazards.

(29) "**Rated Capacity**" (referred to occasionally in OSHA and elsewhere as "Safe Working Load") means the maximum load capacity for items of Contractor's Equipment and Temporary Works, as officially recommended by the manufacturer. The Rated Capacity may be dependent upon the configuration and conditions of use (e.g. length, angle of boom and the like).

(30) "**Rigger**" means a competent person who is certified by the HSO as suitable for assignment to Hoisting and Rigging in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*].

(31) "**Rigging Equipment**" means the ropes, webbing, chains and slings together with all associated accessories such as hooks, hoisting points, shackles, etc. that, when used with Hoisting Equipment, permits loads to be hoisted or lowered, and positioned.

(32) "**Safety Belt**" means a sufficiently substantial strap to be secured about the waist for attaching to a lanyard or line to restrain the movement of workers and prevent them from reaching locations from where they may be at risk of falling.

(33) "**Safety Harness**" means a sufficiently substantial harness to be secured about the body for attaching to a lanyard, lifeline and deceleration device to safely arrest and support any worker during a fall.

(34) "**Scaffold**" or "**Scaffolding**" means a temporary structure or structures that provide access on or from which persons work or to support Goods.

(35) "**SCUBA Diving**" means a diving mode independent of surface supply in which the Diver uses open circuit self-contained underwater breathing apparatus.

(36) "**Skill Training"** means additional training to be provided by the Contractor for the Contractor's Personnel to develop and improve their trade skills in performing their work at the Site and shall include OJT and theoretical training in accordance with JSSS 1.21 [*Skill Training*]. Such training shall also include examining and testing by the Contractor and certification of attainment in such skills.

(37) "**Spotter**" means a member of the Contractor's Personnel who is generally responsible for warning other Contractor's and Employer's Personnel and other persons and keeping them away from working operations and areas, for assisting drivers of trucks and operators of Contractor's Equipment in positioning their vehicles and equipment particularly when reversing, positioning or hoisting, and such further duties as are assigned to them in JSSS 2.4 [*Spotters*].

Any reference to a "Spotter" in JSSS shall also be deemed to include a reference to a banksman or flagman.

(38) "**Surface-Supplied Air Diving**" means a diving mode in which the Diver is supplied at the dive location with a piped supply of compressed air for breathing.

(39) "**Trade Effluent**" means any liquid waste (effluent) that is discharged from premises being used for a business, trade or industrial process, other than surface water and domestic sewage.

(40) "**Unexploded Ordnance**" or "**UXO**" means unexploded bombs, or explosive remnants of war or explosive weapons(such as bombs, shells, grenades, land mines, naval mines, cluster munition, and the like) that did not explode when they were employed and still pose a risk of detonation, sometimes long after they were used or discarded.

(41) "**Working Platform**" means a platform on or within a Scaffold that is intended and designed to support persons or Goods.

A1.1.3 The following abbreviations of technical terms shall have the meanings stated:

AED	Automatic External Defibrillator
BMGV	Biological Monitoring Guidance Values
CPR	Cardiopulmonary Resuscitation
GFCI	Ground Fault Circuit Interrupter
ODA	Official Development Assistance
OJT	On the Job Training
PFAS	Personal Fall Arrest System
PFRS	Personal Fall Restraint System
PPE	Personal Protective Equipment
RCD	Residual Current Device
TBM	Tool Box Meetings
TWA	Time Weighted Average
WEL	Workplace Exposure Limits

A1.1.4 The following abbreviations of standards, codes and the like shall have the meanings stated:

ACI	American Concrete Institute
ANSI	American National Standards Institute
ASHTO	American Association of State of Highway Transportation Officials
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials.
BS	British Standard
BS EN	British Standard European Norm
HSE	UK Health and Safety Executive
ISO	International Organization for Standardization
ILO	International Labour Organization
JIS	Japanese Industrial Standards

Annex 1.2: Content of Bid Stage Safety Plan

A1.2.1 This Annex lists the required content for the Bid Stage Safety Plan as referred to in JSSS 1.7 [*Contractor's Safety Plans*]. Unless otherwise specified in the Particular Safety Specification, the Contractor shall follow this format and structure in the Bid Stage Safety Plan. The same format and structure shall be used later for the Baseline Safety Plan but with the content developed as necessary to show the required detail.

A1.2.2 The Bid Stage Safety Plan shall be an outline plan but it must cover each of the items listed below with sufficient detail provided to demonstrate that the Bidder understands the requirements and indicates the Bidder's intentions, so that this can be understood and properly evaluated.

(1) Description of the Works

A description of the Works supported by overall layout plan(s) to provide a clear understanding of the overall layout and content of the Works and showing main construction items and areas, roads, Site access and egress locations, working areas, storage areas, temporary offices, laydown areas, warehouses and like facilities and including a summary of principal work items and significant quantities, etc.

(2) Bidder's Corporate Policy on Health and Safety Management

A description of the Bidder's corporate health and safety management policy covering the aims and intentions for improving the level of health and safety. The policy shall include a description of the purpose of health and safety (prevention of occupational accidents, maintenance of physical and mental health of workers, etc.), a description of the basic company policies on risk assessment and health and safety management.

(3) Health and Safety Management System, Responsibility and Authority of Bidder's Personnel

A description of the health and safety management organisation at the Site headed by the Bidder's Health and Safety Officer (HSO) and showing the approximate numbers, responsibilities and authority of any other Contractor's Personnel involved in health and safety management at the Site.

A description of the responsibilities and authority of the Bidder's head office health and safety personnel together with the communication procedures for contact and support for the Site safety teams.

(4) Health and Safety Laws

A list of Laws (including all standards) of the Country which require the Bidders compliance for the health and safety of his workers and for the health and safety management of the Works. If the Contractor considers any parts to be superseded by JSSS then the relevant Clause number of JSSS shall be inserted.

(5) Bidder's Safety Management System

Refer to JSSS 1.5 [*Contractor's Safety Management System*].

Describe the scheme that the Bidder is proposing and how he intends to implement same.

(6) Temporary Works

Refer to JSSS 1.37 [*Design and Management of Temporary Works*].

A Safety Plan for Temporary Works listing the principal items, describing the content, and specifying the outline of safety measures to be applied to ensure compliance with the requirements.

(7) Temporary Facilities on Site

The plan shall include a description of the general health and safety rules (e.g. smoking areas, traveling speed on Site, cleanliness, tidiness, latrines, wash rooms, shelters, etc.).

(8) Safety Measures for Contractor's Design of the Permanent Works

If, under GC 4.1 [*Contractor's General Obligations*], the Contract specifies that the Contractor shall design any part of the Permanent Works, the Bidder shall provide a description of the arrangements for controlling risks arising from such design of the Permanent Works.

(9) Safety Plan for the Works

A Safety Plan for the whole of the Works with separate parts provided for each part of the Works, including descriptions of the likely risks and measures for preventing accidents on the Site.

(10) Safety Plan for Diving Works

(Where Diving Works are included in the scope)

Refer to JSSS 10 [*Diving Works*].

A Safety Plan in accordance with the requirements of JSSS 10, including a description of the arrangements at the Site of the Diving Works for emergency recompression/decompression.

(11) Safety Plan for Dangerous Work.

Refer to JSSS 1.22 [*Dangerous Work*].

A listing of any Dangerous Work which will be encountered on the Site and general details of the Safety Plan for such Dangerous Work by reference to JSSS Annex 1.1 [*Definitions and Abbreviations*] and GC 4.1 [*Contractor's General Obligations*].

(12) Permit to Work System

Refer to JSSS 1.23 [*Permit to Work System – Dangerous Work*].

A listing of all high-risk areas of the Works that shall be subject to the Permit to Work System together with a description of proposed procedure.

(13) Safety Measures for Contractor's Equipment

Refer to JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

A description of the procedures for inspecting and maintaining the Contractor's Equipment together with all spare parts, including inspections prior to shipment, after arrival at the Site and during use to ensure that all Contractor's Equipment at the Site is maintained in a safe, efficient, non-polluting and acceptable condition. It shall include a general description of all regular maintenance and repair activities.

(14) Proposed Health and Safety Incentive Scheme

Refer to JSSS 1.34 [*Health and Safety Incentive Schemes*].

A description of the Proposed Health and Safety Incentive Scheme, designed to encourage conscious consideration of health and safety by Contractor's Personnel and to reward improvement.

(15) Safety Information Sharing and Communications Policy

A description of the information sharing and communication systems for health and safety within the organisation of the Contractor and between the Contractor and Employer, Engineer and relevant government agencies, etc. Reference shall be made to the various health and safety meetings described in JSSS.

A description of safety management activities for Contractor's Personnel shall be included together with the method for giving and receiving feedback and opinions regarding health and safety.

(16) Health and Safety Equipment, Facilities and Personal Protective Equipment (PPE)

Refer to JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

A description of the intended policies for the deployment of safety equipment, facilities and PPE to reduce health and safety risks, detailing the items and methods for providing and replacing (when worn, lost or damaged) general PPE and the use of additional PPE for particular working locations, environments and conditions.

(17) Site Inspection Plan

A description of the methods for Site inspections by the HSO, types of inspection and frequency.

The description shall also include the methods for reporting, recording and utilising results and also for posting warnings, no entry notices, giving instructions and stopping work.

(18) Site Security

A description of the proposed Site security methods explaining how access to the Site by third parties, neighbours, nearby residents and any trespassers upon the Site will be prevented or (if and when applicable) permitted.

The description shall include the provision and control of entry and exit gates, barriers etc., security posts, security patrols and any other measures to reasonably ensure the security of the Site.

(19) Policy for Preventing Traffic Accidents

A description of the measures to be implemented for the prevention of traffic accidents on the public roads outside the Site and on roads and all other trafficked areas within the Site.

A description of the measures to be implemented to prevent workers riding in the back of pick-ups or trucks, or boarding or alighting from them near the Site, compulsory wearing of seat belts.

(20) Reporting Procedure for Unsafe Conditions and Behaviour

A procedure for the reporting of unsafe conditions and unsafe behaviour on the Site (including near-misses) together with improvement actions including instructions, implementation and the recording of improvement measures.

(21) Accident Response Plan

Refer to JSSS 1.24 [*Accident Response Plan*].

The Plan shall describe the facilities to be provided and also cover the preparation and submission of the accident report, describing when an accident report will be prepared and submitted, the method of investigation of causes, planning and implementation of preventive measures against recurrence.

(22) Health Care Plan

Refer to JSSS 1.36 [*Health Matters*].

A description of the proposed facilities, furniture and equipment for rest stations, restroom, dining facilities, canteens, sanitary facilities, sports and leisure facilities, shower facilities, changing room etc.

A health care plan with services and facilities for maintaining the health and occupational health of all Contractor's Personnel.

(23) Environmental, Temporary Works and Structural Monitoring Plans

Refer to JSSS 2.1.7 [*Monitoring and Records*].

A description of the proposed monitoring equipment, instruments, Contractor's Personnel and methods for monitoring and control of the working environment, the performance of the Works and the avoidance of damage to Other Properties.

(24) Fire Response Plan

Refer to JSSS 2.8 [*Fire Prevention*].

Details of the fire prevention services to be provided at the Site.

(25) Emergency Response Plan

Refer to JSSS 1.26 [*Emergency Response Plan*]

Details of the Emergency Response Plan.

(26) Monitoring and Review of Health and Safety Management Activities

The procedures for monitoring and reviewing the purpose, method, timing, utilisation of results, development, etc. of health and safety management activities such as safety inspections, TBM, 5S activities (refer to JSSS 1.15 [*Contractor's Safety Management Activities*]).

(27) Safety Induction Training

Refer to JSSS 1.20 [*Safety Induction Training*].

An outline description of the required safety induction training for all proposed health and safety training plans, describing methods, facilities, time, teaching materials, policies for selecting trainers, etc. and covering safety induction.

Details of special training required for Dangerous Work shall also be included.

(28) Skill Training

Refer to JSSS 1.21 [*Skill Training*].

An outline description of the proposed Skill Training plans for local counterpart Operation Leaders, describing OJT and classroom components, facilities, participants, time, teaching materials, policies for selecting trainers and the counterparts.

(29) Legal Requirements

A description in brief with references to the legal requirements and remedies in the Country for injuries and death at work and for persons affected by illness, together with a summary of any workmen's accident compensation insurance or stating that there are no such legal requirements if that is the case, and any other legal obligations and remedies.

Annex 1.3: Additional Contractor Forms

Attached Forms:

Form JSSS/BSD – Bidder's Safety Declaration

Form JSSS/SAR – Sample Accident Report

Form JSSS/BSD – Bidder's Safety Declaration

[This form is to be inserted in the Bidding Documents after the existing Form-ACK, with new page number, renumbering existing pages appropriately and inserting suitable reference in the Table of Forms]

I, *[insert name and position of authorised signatory]*, being duly authorised by *[insert name of Bidder/members of joint venture ("JV")]* (hereinafter referred to as the "Bidder") to execute this Form JSSS/BSD, hereby declare our commitment to comply with the health and safety requirements of the Contract.

The Bidder declares, that if selected to undertake the Works, he will ensure that the Site is established and maintained as a healthy and safe workplace for the Contractor's Personnel, the Employer's Personnel and all other persons entitled to be thereon or that may be affected by operations thereby.

The Bidder hereby declares that after investigation and research of resources within the Country, he has given full and careful consideration and fully accepts the need and has made full allowance for the importation, the use upon the Works and subsequent re-export in accordance with the Contract of all required Contractor's Equipment, Temporary Works, PPE and all other safety resources necessary to maintain the international level of health and safety upon the Works.

The Bidder declares that he will mobilise for use upon the Works:

1. New or recent PPE and other safety equipment of an international standard, suitable and fit for the purpose for which it is intended, in full working order, complete with all necessary spare parts and consumables, suitable and safe for use on the Works, all to meet with the consent of the Engineer and in sufficient quantities to allow for replacement in the case of being worn-out, lost or damaged, and
2. New or recent Contractor's Equipment and Temporary Works, all suitable and fit for the purpose for which it is intended, in full working order, clean, non-polluting, complete with all necessary spare parts and consumables, suitable and safe for use on the Works.

The Bidder further declares that he shall:

1. Carry out regular and thorough safety inspections, find and correct any health and safety problems on the Works, primarily by trying to eliminate or reduce hazards through making feasible changes in working conditions rather than relying on PPE to reduce risks.
2. Employ workers with appropriate skill, educational or vocational qualification, experience and capability.
3. Fully inform workers about hazards.
4. Provide health and safety training to all Contractor's Personnel, any Subcontractors, suppliers and others for whom the Contractor is responsible, the Employer's Personnel and all other persons who are entitled to be on the Site, in a language and vocabulary they can understand.
5. Keep accurate records of work-related injuries and illnesses.
6. Perform tests in the workplace, such as air sampling as required by the Safety Specification.
7. Provide required new PPE at no cost to workers and ensure that this is used properly, kept in good condition and replaced in the case of being worn-out, lost or damaged.
8. Assign only workers who, in consideration of health, physical condition and age are suited to the operations to which they are assigned.
9. Provide eyesight, hearing and mobility examinations and other medical tests required by the Contract.

10. Post injury and illness information and data where workers can see them.

11. At occurrence of any accident, promptly inform the Engineer and thereafter submit details of the accident within twenty-four (24) hours after its occurrence.

12. Not retaliate against workers for using their rights under the Laws of the Country.

The requirements of this declaration shall apply fully to all of the Bidder's proposed Subcontractors, suppliers and specialists engaged by the Bidder on the Works, for whom the Bidder shall remain fully responsible.

The Bidder also affirms that if the Bid is successful, the Health and Safety Officer, named below and also included in Bidding Form, Form PER -1: Proposed Personnel, unless otherwise required by the Bidding Documents, shall be assigned from the Commencement Date, full-time upon the Site and shall not be replaced or substituted at any time except with the consent of the Engineer.

If the Bid is accepted the Bidder agrees that this Declaration shall form a part of the Contract, at and from which time all references to "Bidder" shall be construed as references to "Contractor".

Signed:	Signed:
_____	(Bidder's Proposed Health and Safety Officer)
(Bidder's Official Representative)	Or
	Bidder's Head Office Health and Safety Manager*)
Name:	Name:
_____	_____
Date: _____	Date: _____

*(*Delete as applicable)*

Form JSSS/SAR – Sample Accident Report

[The form is to be completed by the Contractor, submitted to the Engineer when applicable and in accordance with JSSS 1.25 [Measures at the Time Accidents Occur]

CONTRACT INFORMATION:	
1) Name of Project:	
2) Project Reference Number： （e.g. L/A No.）	
3) Contract Number:	
4) Package Description:	
5) Employer: (name and nationality)	
6) Contractor: (name and nationality) (If casualty(ies) is(are) belonging to Subcontractor) Subcontractor: (name and nationality)	
7) Engineer: (name and nationality)	
8) Press Report about the Accident (Name of Media, Date, and Copy of Report to be attached)	

(above to be inserted before all reports)

FIRST REPORT INFORMATION:	
1) Date and time of accident occurrence (local time):	
2) Date and time of first verbal report to Engineer:	
3) Exact location of accident occurrence:	
4) Brief background and apparent cause:	
5) (i) Number of casualty(ies)/ (ii) Information of casualty(ies) (Nationality, Age, Sex, Position, Experience Year)/ (iii) Description of injuries incurred	
6) Physical damages to the Works, Site and any properties of the third parties	
7) Present medical status of casualty(ies):	
8) Present work status:	
9) List attached information (e.g. Layout and sketch drawings, photographs, notes and report):	
10) Accident Report Submission Date	

SUBSEQUENT REPORT INFORMATION (POST-INVESTIGATION):	
1) Cause(s) of the accident:	
2) Counter-measures proposed by the Contractor to avoid recurrence of similar accidents and risks:	
3) Number of reported accident(s) occurred in the past one (1) year in the same Contract Package as the accident occurred:	
4) Number of reported near misses occurred in the past one (1) year in the same Contract Package as the accident occurred:	
5) Other Information:	

Report Prepared by: (name): _____ (sign) : _____ Report Submission Date(s) _____ Time: _____	Contractor's Health and Safety Officer (HSO)
Receipt acknowledged by: (name): _____ (sign): _____ Report Receipt Date(s) _____ Time: _____	Engineer

(above to be inserted with detail and signatures at end of each report)

CHAPTER 2: GENERAL SAFETY MEASURES

2.1 WORK ENVIRONMENT

Contractor's Personnel shall be provided with a safe and healthy occupational environment. The Contractor shall implement all necessary measures to avoid the creation of and/or any contact with Hazardous Substances, intense noise, heat, cold or similar and potentially harmful conditions or to provide protection against such conditions.

2.1.1 Hazardous Substances

(1) Definitions

Refer to the definition of Hazardous Substances in JSSS Annex 1.1 [*Definitions and Abbreviations*].

(2) Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any Hazardous Substances either existing on the Site, used in or encountered on the Works, the Contractor shall take necessary measures for work environment complying with EH40/2005 Workplace Exposure Limits, (third edition published 2018), issued by HSE, including monitoring such substances to ensure that the Short Term and Long-Term exposure limits in HSE Table 1 are not exceeded.

2.1.2 Dust

(1) Dust

Dust of any kind when present at a concentration in air shall not be equal to or greater than:

(a) 10 mg/m3 (8-hour Time Weighted Average: TWA) of inhalable dust; or

(b) 4 mg/m3 (8-hour TWA) of respirable dust.

(2) Prevention

(a) The Contractor shall prevent dust emission, by keeping the source moist and covering dust creating areas and materials with suitable dust-proof sheeting; and

(b) The Contractor shall provide all necessary Contractor's Equipment and Temporary Works to achieve this including water-bowsers, spraying equipment, extract ventilation and filtration equipment.

(3) PPE

(a) If, in the opinion of the HSO, it is not reasonably practicable to reduce dust to acceptable levels, PPE (Breathing Apparatus) shall be provided for all relevant Contractor's Personnel; and

(b) For details of PPE refer to JSSS 2.9.1 [*PPE*].

(4) Asbestos

(a) The Contractor shall be aware that asbestos causes occupational fatalities. It is commonly found in older buildings frequently in ceiling and floor cavities, insulation, sprayed coatings, floor tiles and composites, asbestos-cement sheets and roofing felt;

(b) If the scope of the Works requires removal of any of the above materials then the Contractor shall check for asbestos content, then remove and dispose of such materials in compliance with L143 Approved Code of Practice and guidance, for Managing and Working with Asbestos (second edition published 2013), issued by HSE; and

(c) If the Particular Safety Specification specifies that asbestos may exist at the Site and that the Contractor is responsible for the removal and disposal or if it is discovered during the execution of the Works and the Contractor is instructed by the Engineer to remove it, then the Contractor shall take measures in accordance with the requirements of JSSS 1.22 [*Dangerous Work*]; and comply with L143 Approved Code of Practice and guidance, for Managing and Working with Asbestos (second edition published 2013), issued by HSE; for the controlled safe removal and disposal of asbestos.

コメントの追加 **[MJD37]:** Suggest "s" is necessary

コメントの追加 **[SS38R37]:** I agreed to add "s".

2.1.3 Poor Ventilation

(1) The Contractor shall inspect and carry out monitoring to ensure that all working areas have adequate and healthy natural ventilation.

(2) If any areas do not have adequate and healthy natural ventilation, the Contractor shall provide suitable and efficient mechanical ventilation systems with fans, ducting and all associated devices and services to improve the working environment to acceptable safe levels.

(3) If this is not completely possible then PPE (breathing apparatus) shall be used in accordance with the requirements of JSSS 2.9.1 (8) [*Respiratory Protection Equipment (RPE)*].

(4) The Contractor shall generally prohibit the use of internal combustion engines in internal areas. When the use of such engines is unavoidable, the Contractor shall provide exhaust systems which safely and efficiently collect, contain and expel exhaust gases to external areas and provide additional adequate ventilation.

2.1.4 Noise

(1) Compliance Standards

(a) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for noise exposure and control complying with OSHA 1926.52 [Occupational noise exposure]; and

(b) The Contractor shall provide equipment such as, sound level meters, noise dosimeters, or octave band analysers to determine what sound levels exist and whether they are within the levels in Table D-2 or not.

(2) Preventive Measures

To prevent noise damage to Contractor's Personnel, which may occur when noise levels exceed 90 dBA (referred to as "intense noise" in JSSS), or if for any reason sound levels cannot be determined as above the Contractor shall:

(a) Reduce sound levels through feasible administrative or engineering controls to within the levels of Table 2.1.1 [*OSHA Table D-2: Permissible Noise Exposures*], if at all possible:

Table 2.1.1: OSHA Table D-2: Permissible Noise Exposures

Duration per day, hours	Sound level dBA slow response	Duration per day, hours	Sound level dBA slow response
8	90	1½	102
6	92	1	105
4	95	½	110

3	97	¼ or less	115
2	100		

(b) If such controls are not possible or if they fail to reduce sound levels within the levels of OSHA Table D-2, provide PPE (Ear Protection) for relevant Contractor's Personnel as specified in JSSS 2.9.1 (7) [*Ear Protection*] in consideration of the noise level and length of noise exposure at the working area in accordance with the provisions of the OSHA Standard;

(c) Post warning signs at the working area to make all Contractor's Personnel aware that ear protection must be worn; and

(d) In all cases where the sound levels exceed the values shown OSHA Table D-2, a Continuing Effective Hearing Conservation Program specified in (3) below shall be implemented.

(3) Hearing Conservation Program

(a) The Contractor shall implement a hearing protection and conservation program whereby noise exposure levels are monitored in order to accurately identify any Contractor's Personnel that are exposed to noise at or above 90 dBA averaged over 8 working hours, or an 8-hour time TWA;

(b) Further to JSSS 2.1.4 the Contractor shall comply with OSHA 1910.95 [Occupational noise exposure], in respect of exposure to impulsive or impact noise;

(c) Exposure to impulsive or impact noise shall not exceed 140 dBC peak sound pressure level; and

(d) The Contractor shall monitor all workers whose noise exposure is equivalent to or greater than a noise exposure received in eight (8) hours where the noise level is constantly 85 dBA. The exposure measurement must include all continuous, intermittent, and impulsive noise within an 80 dBA to 130 dBA range and must be taken during a typical work situation. The Contractor shall choose the monitoring method that best suits each individual situation.

2.1.5 Further Requirements for Dangerous Work

Further to the requirements of JSSS 1.22 [*Dangerous Work*] and in relation to work in Confined Spaces, Hazardous Areas, or Operational Areas or in the presence of or requiring the use of Hazardous Substances or Dangerous Goods or other work which is especially and potentially dangerous, requiring the application of special skills, safety equipment, safety measures and PPE, the Contractor shall establish systems and procedures to ensure the safety of all Contractor's Personnel engaged upon or supervising or managing such Dangerous Work, and for this purpose the Contractor shall:

(1) Measure the concentration of oxygen, hydrogen sulphide, carbon dioxide, carbon monoxide, chlorine, chlorine dioxide, Trade Effluent and any other potentially harmful materials, gases and chemicals, or other work environment items before starting any work.

(2) Safely isolate the supply and flow of any Trade Effluent, or other potentially harmful materials, gases and chemicals during the period of any work and safely reconnect or continue same after the work is finished.

(3) Improve and maintain the work environment for example by mechanical ventilation and filtration if the result of the work environment measurement in (1) above violates the limits specified in this JSSS 2 [*General Safety Measures*].

(4) For further information on the removal and disposal of Hazardous Substances refer to

コメントの追加 **[SS39]:** 8. (32)

コメントの追加 **[SS40]:** No. 32
Unit shall be revised as follows:
140 shall be with dBC and others shall be with dBA.

コメントの追加 **[MJD41R40]:** No comment will change

コメントの追加 **[SS42R40]:** Confirmed.

JSSS 1.22 [*Dangerous Work*].

(5) For further information on prohibition of entry to areas where Dangerous Work is being performed refer to JSSS 2.3 [*Prohibition of Entry*].

2.1.6 High and Low Temperatures and Humidity

(1) To avoid health hazards due to excessively hot, cold or humid working environments, the Contractor shall improve the work environment for all Contractor's Personnel by:

(a) Providing temporary covers and shade to protect workers from rain, hail, snow, sunlight and reflection from the surrounding wall and ground;

(b) Providing protection from any heat or cold source and provide adequate ventilation, heating or air conditioning for indoor working;

(c) Where permitted by the Engineer in hot climates, carrying out work during the night when temperatures and humidity are lower;

(d) Providing drinking water and supplement that allow salt replenishment at the work place;

(e) Providing a rest station with heating, air conditioning or shade near the work place, or providing other facilities equipped with accommodation that allow personnel who fall ill to lie down and recover;

(f) Allowing work breaks and reducing excessive and continuous working times; and

(g) Allowing an initial acclimatisation period for Contractor's Personnel to become used to the heat or cold.

(2) The Contractor shall ensure that workers wear moisture-permeable and loose-fitting clothing in hot climates and suitably warm, insulated and waterproof clothes in cool or cold climates.

(3) If any undesirable conditions are detected, the Contractor shall take appropriate measures to correct the situation, allowing Contractor's Personnel to rest or temporarily stop the work until the conditions improve.

(4) The Contractor shall monitor the health of Contractor's Personnel before and during the work, allowing Contractor's Personnel to take a rest and/or rehydrate as necessary and take further action if any additional abnormalities are observed.

2.1.7 Monitoring and Records

(1) The Contractor shall monitor the working environment and prepare regular daily, weekly and monthly records of dust, noise, air and water quality, inadequate natural ventilation, rainfall, snowfall, temperatures, humidity, wind speed and direction regularly ~~throughout the Time for Completion of the Works~~ ~~until the Taking-Over Certificate is issued for the entire Works or any relevant part of the Works.~~ until completion and taking over under GC 10 [*Employer's Taking Over*].

(2) The procedure for preparation and submission of such records shall be as stated in JSSS 1.32 [*Health and Safety Records*].

(3) The Contractor's monitoring and recording shall also cover:

(a) The pre-existent conditions for all periods of Dangerous Work;

(b) Dust at work places where excessive dust and waste material such as dirt, rocks, minerals, metals, carbon, cement, etc. is generated;

(c) Noise levels at work places that generate intense noise;

(d) Ventilation volume, temperature and concentration of carbon dioxide, carbon monoxide, oxygen, hydrogen sulphide, other toxic or dangerous gases at work

コメントの追加 **[SS43]:** No. 33
JICA commented this shall be revised to "until the Taking-Over Certificate" or " until the Taking-Over Certificate is issued for the entire Works or any relevant part of the Works" as explained in the attached paper.
NK agreed to this revision.

コメントの追加 **[MJD45R44]:** No comment on taking-over earlier than the Time for Completion.

As revised wording is required it would appear more simple to state "until completion and taking over under GC 10 [*Employer's Taking Over*].

コメントの追加 **[SS44]:** 9. (33)

コメントの追加 **[SS46R44]:** I agree to your suggestion.

places including tunnels and deep pits and Confined Spaces; and

(e) Illuminance at work place and walkways.

(4) The above monitoring shall be conducted separately from the environmental monitoring that may be required by the Laws of the Country and any environmental monitoring that may be separately specified in the Contract.

(5) For the following measurement items, if the following limits are violated, the Contractor shall take the measures prescribed in JSSS 1.22 [*Dangerous Work*], JSSS 2.1.5 [*Further Requirements for Dangerous Work*] and JSSS 2.3 [*Prohibition of Entry*].

(a) Values of limits of measurement items:

(i) Oxygen concentration less than 19.0% and more than 23.5%;

(ii) Hydrogen sulphide concentration more than 10 ppm (short-term exposure limit) or 5 ppm (long term exposure limit);

(iii) Carbon dioxide concentration more than 15,000 ppm (short-term exposure limit) or 5,000 ppm (long term exposure limit); and

(iv) Other Hazardous Substances either existing on the Site, used in or encountered on the Works: values of limits for other substances given in EH40/2005 Workplace Exposure Limits (third edition published 2018), issued by HSE, Table 1.

(b) Combustible gas and vapor concentration: in excess of 10% of the lower limit of flammability.

(6) The Contractor shall also monitor any vibration, settlement and other adverse effects arising out of the execution of the Works to ascertain if these are causing any adverse effect to the Works or to Other Properties whilst ensuring that no damage or weakening is caused.

(7) Monitoring shall be accomplished by the Contractor through regular inspection, measurement, survey, instrument monitoring and recording as determined by the nature and scope of the Works taking account of any additional requirements which may be specified in the Particular Safety Specification.

(8) Works that require monitoring shall include the following where any risk of damage is perceived by the HSO or Engineer:

(a) Excavation Works;

(b) Foundation Piling Works;

(c) Ground improvement;

(d) Temporary ground dewatering;

(e) Temporary Works such as major items of Earthwork Support, Cofferdams and the like; to demonstrate that they are performing safely, to the designed limits and for the intended purpose;

(f) ~~Other parts of the Works required to evidence the Contractor's compliance with the Contract; and~~

(g) ~~Other parts of the Works which may be specified in the Particular Safety Specification.~~

(h) Other parts of the Works which may be specified in the Contract or the Safety Plan.

(9) The Contractor shall prepare a monitoring plan as a part of the Safety Plan or Method Statement for the above Works which shall describe:

コメントの追加 **[SS47]:** 10. (34)

コメントの追加 **[SS48]:** No. 34
JICA commented if (g) is revised to "the Contract", difference between (f) and (g) is not clear. Therefore, JICA proposed to combine (f) and (g) as follows:

"other part of the Works which may be specified in the Contract or the Safety Plan"

NK agreed to this revision.

コメントの追加 **[MJD49R48]:** No comment will change

コメントの追加 **[SS50R48]:** Confirmed.

(a) The Contractor's proposed monitoring criteria for vibration, settlement and all other potential effects of the Works, which by the Contractor's own calculations will ensure that no damage or weakening is caused to Other Properties;

(b) The types, locations and numbers of monitoring instruments and other equipment;

(c) The measurement frequency and recording methods; and

(d) The countermeasures to be applied when the actual measured values are close to or exceed the various minimum, intermediate and maximum criteria.

(10) The Contractor shall:

(a) Provide and maintain all survey equipment, monitoring and recording equipment to provide comprehensive, accurate and contemporary or live data with records, showing the performance characteristics of the Works;

(b) Provide qualified staff to perform the monitoring;

(c) Maintain and calibrate the monitoring instruments and equipment as necessary throughout the execution of the Works;

(d) Perform survey and monitoring on a regular basis throughout the execution of the Works;

(e) Confirm the occurrence and extent of any adverse effect arising out of the execution of the Works by means of regular inspections of all Other Properties;

(f) Take the measures prescribed when necessary to comply with the Contractor's obligations, propose remedial measures and implement such measures after receiving the consent of the Engineer;

(g) Evaluate the measurement results and modify the monitoring criteria as necessary; and

(h) Submit an evaluation report if necessary with any changes to the Safety Plan for Works to the Engineer before proceeding with the Works.

(11) Requirements for instrumentation systems shall be as follows:

(a) The Contractor shall select instruments and measurement methods that meet the purpose of the monitoring;

(b) The Contractor shall determine locations and numbers of measurement points which meet the purpose of monitoring and need for safety management. The locations of measurement shall be where measurement can be continuously made throughout the period of working;

(c) The instrumentation shall be regularly calibrated and protected against damage by the Contractor;

(d) The HSO and other relevant Contractor's Personnel shall analyse the data and take all necessary corrective action consequent to such monitoring to ensure the continued compliant and safe performance of the Works; and

(e) The Engineer shall be invited to attend the inspections and data collection to ensure the Contractor's compliance in accordance with JSSS 1.10 [*Engineer's Safety Representative*], JSSS 1.11 [*Safety Compliance Instructions from the Engineer*] and JSSS 1.16 [*Joint Site Safety Inspections*].

(12) Management based on Monitoring and Inspection

(a) Management by Visual Inspection:

If and when the Contractor finds any irregularity through visual inspection, the Contractor shall take necessary measures in accordance with the degree of

abnormality, including detailed research, urgent countermeasures, evacuation of workers.

(b) Management by Instrument Measurement:

Unless otherwise specified in the Particular Safety Specification, the Contractor shall determine control limit values based initially upon the allowable displacement or stress in the design, then the following stepwise control values shall be established by the Contractor and necessary measurement and related actions shall be taken.

The Contractor shall provide the following three (3) critical limits in his arrangements for the performance of the Works or in his design of the Temporary Works, and shall take appropriate action when any of these limits is reached:

(i) Primary Limit:

When measured values reach this limit, the Contractor shall increase the degree of care on the incident over inspections and commence preparing countermeasures which will be implemented if and when the measurement value reaches the Secondary Limit and obtain the Engineer's consent for such countermeasures.

The Contractor shall submit the measured values on a weekly basis to the Engineer unless otherwise instructed by the Engineer.

(ii) Secondary Limit:

When measured values reach this limit, the Contractor shall stop the relevant part of the Works and implement the countermeasures.

(iii) Control Limit:

When measured values reach this limit, the Contractor shall immediately stop the relevant part of the Works, advise all affected persons, prohibit entry of any unauthorised persons to the affected area(s), take counter measures to prevent failure, review and revise the Method Statement and Safety Plan, and comply with the Engineer's Instructions before proceeding.

(13) Contractor's Responsibility against damage to Property

Notwithstanding the requirements of this Clause of JSSS, the Contractor is reminded of his overall responsibility under the Contract in respect of damage to property.

The Contractor shall satisfy himself that the monitoring criteria and requirements specified above, or in other respective Chapters of JSSS and/or in the Particular Safety Specification, are sufficient to comply with his obligations under the Contract and he shall take any additional measures necessary to avoid damage to property.

2.2 RISK CONTROL AROUND THE SITE

2.2.1 General

(1) The Contractor is reminded of his obligations under GC 4.8 [*Safety Procedures*] and GC 4.22 [*Security of the Site*] to keep any unauthorised persons off the Site, and without prejudice to such obligations the Contractor shall take all necessary further measures under this Section to prevent any such unauthorised persons (including third parties, neighbours and particularly children) who may for example be living or working around the boundary of the Site or adjacent thereto, from entering the Site.

(2) In addition, the Contractor shall help to maintain communications with the local community near the Site in accordance with JSSS 2.2.6 [*Community Relations*].

(3) In addition to taking necessary action to keep any unauthorised persons off the Site the Contractor shall fully inform the relevant local organisations (e.g. police force) and if necessary request assistance to remove any trespassers from the Site. When requested by the Contractor, the Employer shall provide reasonable assistance to coordinate with the local organisations (including the police force).

(4) Such measures shall include (but are not restricted to) the following requirements of this Section.

(5) The Contractor shall also prevent access to the Site by any persons, including Contractor's and Employer's Personnel and any others who are under the influence of drink or drugs and also to prevent alcohol and drugs being brought onto the Site.

2.2.2 Working Area Perimeter

(1) Unless otherwise specified in the Particular Safety Specification, the Contractor shall:

(a) Enclose the perimeter of all working areas with secure fencing to prevent access to the Site by unauthorised persons;

(b) Maintain all such fencing in good condition, until such fencing is no longer needed and reinstate all affected areas;

(c) Provide secure entry points with lockable gates or barrier;

(d) Provide and maintain signs clearly advising/warning against entry; and

(e) Provide watchmen and lighting where, when and to the extent necessary to apprehend and evict any unauthorised persons (particularly children) from the working area, where such persons have breached the Site Perimeter and working area perimeter fencing.

(2) Unless otherwise specified in the Particular Safety Specification, working area perimeter fencing shall be temporary, constructed of new and durable materials and fit for the purpose intended.

(3) Full details of working area perimeter fencing including scope, dimensions and specifications shall be given in the Method Statement.

(4) The Contractor shall provide fall prevention measures such as temporary covers or barriers, with lighting and warning signs for any excavations outside the working area perimeter.

2.2.3 Measures for Road Occupation

(1) Before the Contractor carries out work on, in or under a public road, or uses it for access to the Site, based on the prior coordination with the relevant authorities by the Employer, in order to ensure safe and smooth traffic flow on the road, the Contractor shall:

(a) Prepare a road usage plan and submit it to the relevant authorities, and obtain necessary permits, prior to road use;

コメントの追加 [SS51]: 11. (38)

コメントの追加 [SS52]: No. 38
Cambridge Dictionary says "prevent something from XXing".
https://dictionary.cambridge.org/dictionary/english/prevent
We are informed, however, that "from" is often omitted in U.K. Well, let's omit it.
（大場）辞書をよく読むと「英国では"from"を省略しがち」とある。

→他の箇所と比較をして統一する
Depending on use of "prevent" "with" or "without" "from" -ing in JSSS, we make it consistent with/without "from".

NK: Both "with" and "without" "from" -ing" are used in JSSS. So we leave as they are.

コメントの追加 [MJD53R52]: No further comment, will not change

コメントの追加 [SS54R52]: Confirmed.

(b) Obtain the approval and necessary permits of the relevant authorities before any road closure, diversion or other traffic restrictions are applied;

(c) Take necessary measures to ensure safe and smooth traffic flow on the road during the entire road usage period; and

(d) Take safety measures specified in JSSS 2.2.2 [*Working Area Perimeter*].

(2) The Contractor shall provide a Spotter (refer to JSSS 2.4 [*Spotters*] full time upon the Works (including all non-working periods) so that the Contractor's Personnel and the general public including road users, pedestrians and all others are effectively informed, controlled and protected against accident.

2.2.4 Temporary Road Signs

(1) For disseminating necessary information on roads adjacent to the Site, the Contractor shall:

(a) Provide standard road signs in the same colours and format as those used by the relevant authorities in the Country such as construction signs, direction, speed restriction, detour and roadwork signs;

(b) Signs shall be set in suitable places so as to give due warning, information and guidance to road-users and pedestrians alike; and

Signs shall be fit for purpose, fixed firmly so as not to break, fall or otherwise be damaged due to vibration, wind or other natural causes.

(2) Maintain the various signs regularly, including repairing, painting and cleaning. Ensure that all are clearly visible, well-lit or made of reflective materials so that they can be seen clearly from a distance at night.

2.2.5 Traffic Accident Prevention at Site Entrance

(1) In order to prevent traffic accidents occurring at or near the Site entrance, the Contractor shall:

(a) Provide warning signs adjacent to the Site entrance to inform drivers on the public road that the Site entrance exists and to inform of the possible emergence of construction traffic/equipment;

(b) Provide temporary traffic signals or Spotters for safe control of traffic (including construction traffic) and Contractor's Equipment, Contractor's Personnel and the general public including road users, pedestrians and all others to protect against accident;

(c) Provide designated areas for anyone entering the Site to board or be discharged from public and private transport;

(d) Provide pedestrian crossings and passages with Spotters or traffic signals; and

(e) Give priority to pedestrians and passing vehicles at the entrance.

2.2.6 Community Relations

(1) In order to maintain communications and improve safety for the local community near the Site, the Contractor shall:

(a) Cooperate with the Employer and assist in dissemination of comprehensive information about the Project to the nearby community; and

(b) If so required by the Particular Safety Specification, Conduct traffic safety and awareness activities for the local community.

(2) The Contractor shall ensure that all Contractor's Personnel are informed of the safety rules and any precautions regarding the safe passage of construction vehicles/equipment especially when children are arriving at or leaving from school.

(3) The Contractor shall report immediately to the Engineer if the local community raises any complaints or issues any requests to the Contractor.

2.3 PROHIBITION OF ENTRY

2.3.1 General

(1) The Contractor shall prohibit unauthorised personnel from entering areas where Dangerous Work is being undertaken.

(2) For general requirements of Dangerous Work refer to JSSS 1.22 [*Dangerous Work*].

(3) "Unauthorised personnel" in this context shall mean Contractor's Personnel, Employer's Personnel and any other persons who have not been properly trained or who are not properly equipped with PPE (including rescue equipment) and who are not carrying and displaying an official permit issued to them by the HSO, for that specific work place in accordance with JSSS 1.23 [*Permit to Work System – Dangerous Work*].

(4) Workers assigned to Dangerous Work shall be subject to the Permit to Work System described in JSSS 1.23 [*Permit to Work System – Dangerous Work*].

2.3.2 Demarcation and Requirements

(1) The Contractor shall clearly demarcate all areas where Dangerous Work is being carried out by the use of appropriate fencing, barriers, signage and lighting and shall control access to such areas with the full-time assignment of a Spotter.

(2) The Spotter shall be established outside the working area, and shall prevent the entry of unauthorised personnel and shall constantly communicate with and monitor the safety of assigned workers. The Spotter shall be equipped with radio or other efficient means of communication to act as a liaison with other relevant Contractor's Personnel.

(3) No-one, no matter their position of authority, should be allowed to enter, if not so authorised to do so and the Contractor shall ensure that Spotters do not face any adverse repercussions because of a refusal to allow access.

2.4 SPOTTERS

2.4.1 Definitions

For the definition of "Spotter", refer to JSSS Annex1.1 [*Definitions and Abbreviations*].

2.4.2 Duties

Duties include for example:

(1) Preventing unauthorised personnel from entering areas where Dangerous Work is being carried out.

(2) Giving appropriate guidance and signals during operation of Contractor's Equipment to prevent the equipment tipping, overturning or falling.

(3) Giving appropriate guidance and signals to prevent Contractor's Personnel from being struck or pinned by Contractor's Equipment.

(4) Assisting drivers of vehicles including trucks and operators of other Contractor's Equipment in positioning their vehicles particularly when manoeuvring.

(5) Directing operators and drivers to prevent Contractor's Personnel, Contractor's Equipment, Goods in transit, transport and the like from coming into contact with Overhead Services as defined in JSSS 3 [*Existing Underground, Concealed and Overhead Services*] when working within close proximity and preventing same from encroaching upon minimum allowable distance from Overhead Services.

(6) Controlling pedestrian and vehicular traffic, Contractor's Personnel and Contractor's Equipment on roads and footpaths on or adjacent to the Site, adjacent to buildings, Operational Areas, places with poor visibility, slopes and vertical drops, places where there is risk of falling or landslide and places where excavation and transporting equipment perform Excavation Works close to workers.

(7) Monitoring working locations and conditions and preventing any persons from entering areas where Dangerous Work is being carried out or where there is any risk of potential injury and accident.

(8) Any other similar duties and assistance.

2.4.3 Placement

(1) The Contractor shall provide Spotters as appropriate to the Site situation and the work methods employed.

(2) The Contractor shall ensure that the Spotters are informed about the Site conditions and accident prevention.

2.4.4 Safety

The Contractor shall:

(1) Ensure the safety of Spotters when directing vehicles or Contractor's Equipment.

(2) Ensure that Spotters and drivers agree on hand signals before assisting with vehicle manoeuvring.

(3) Instruct Spotters to maintain visual contact at all times with the driver during vehicle manoeuvring.

(4) Instruct drivers to stop manoeuvring immediately if they lose sight of the Spotter.

(5) Not give Spotters additional duties while they are already acting as Spotters.

(6) Instruct Spotters not to use personal mobile phones, personal headphones, or other items which could pose a distraction during spotting activities.

(7) Provide Spotters with high-visibility clothing, especially during night operations.

2.4.5 Signals

(1) To avoid the risk of injury to the Contractor's Personnel when operating Contractor's Equipment, the Contractor shall establish a standardised signal system and appoint a Spotter to give necessary signals to the Contractor's Personnel.

(2) The Contractor shall ensure that all Contractor's Personnel understand and comply with the signals relating to their assigned work task.

(3) The Contractor shall inform and remind all Contractor's Personnel including those designated as Spotters, of the established standardised signal system as follows:

(a) By training all personnel when they first start work at the Site;

(b) By re-confirming with the all personnel in the TBM before the start of work each day; and

(c) By posting signboards on Site where required showing the standardised signals and placing a smaller-sized sticker version directly on the concerned Contractor's Equipment.

2.4.6 Qualification of Personnel

The Contractor shall ensure that all Spotters possess sufficient experience and ability and are adequately trained and supervised to perform their duties.

2.4.7 Communication Tools

The Contractor shall, when necessary, provide and maintain any necessary equipment such as hand-held radios, to ensure effective and safe communications and train all Spotters in their use.

2.4.8 PPE

The Contractor shall ensure that all Spotters are provided with PPE including hats, whistles, high visibility jackets, flags, illuminated batons, etc. to safely and adequately perform their duties.

2.5 FALL PREVENTION

2.5.1 General Items

(1) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for fall prevention complying with OSHA 1926 Subpart E [Personal Protective and Life Saving Equipment], Subpart M [Fall Protection] and the further requirements for fall protection for workers contained in the following Subparts of OSHA:

(a) OSHA 1926 Subpart L [Scaffolds];

(b) OSHA 1926 Subpart CC [Cranes and Derricks in Construction];

(c) OSHA 1926 Subpart R [Steel Erection];

(d) OSHA 1926 Subpart S [Underground Construction, Caissons, Cofferdams and Compressed Air];

(e) OSHA 1926 Subpart V [Electric Power Transmission and Distribution]; and

(f) OSHA 1926 Subpart X [Stairways and Ladders]. ~~; and~~

~~(g) OSHA 1926.105 [Safety Nets].~~

(2) This Section provides fall prevention solutions for a typical range of example circumstances but this is not intended to be restrictive in extent. The Contractor shall provide fall prevention solutions wherever demanded by the nature of the particular part of the Works.

(3) As a general rule, the Contractor shall take Personal Fall Restraint System (PFRS) measures wherever practicable rather than Personal Fall Arrest System (PFAS) measures.

2.5.2 Height Thresholds

The threshold for fall protection in construction work is 2 m.

The Contractor shall provide fall protection for all personnel, removing all fall hazards whenever any personnel are working 2 m or more above a lower level.

2.5.3 Facilities for Ascending and Descending

When carrying out work at heights of 2 m or more, the Contractor shall provide facilities that enable the Contractor's Personnel to safely ascend and descend from such work levels.

2.5.4 Risk Assessments

(1) Where there is any risk of fall for any part of the Works at the Site, the Contractor shall conduct a pre-assessment of the various types of fall protection systems to be used and the selected alternatives shall be shown in the Safety Plan.

(2) In advance of the commencement of any parts of the Works, the Contractor shall carry out such further risk assessment as necessary, including checking the following and recording the results:

(a) Working areas and the conditions of adjacent areas;

(b) Position, condition and surroundings at each anchorage for separately securing working line, lifeline or nets;

(c) Status of access leading to working areas and any anchorages; and,

(d) The presence or absence of protrusions where there is a risk of cutting or chafing of working line or lifeline or other fall prevention systems and their position and condition.

コメントの追加 **[SS55]:** There is (e) the erection of tanks and communication and broadcast towers in Subpart E §1926.105 (Safety Nets) in the last issue. It is deleted or missing in this issue. Is there any reason to delete this ? If the reason is only overlook it, please add this 1926.105 (Safety Nets).

コメントの追加 **[MJD56R55]:** Not necessary to refer to OSHA as we have covered all requirements of OSHA with JSSS 2.5.16

Can include here also if you require; please advise

コメントの追加 **[SS57R55]:** I assumed so.
We will not add (g).

コメントの追加 **[SS58]:** 7. (30)

2.5.5 Handrails

(1) The Contractor shall provide handrails at places where there is risk of fall.

(2) Handrails shall be complete with top-rails, minimum 85 cm high and mid-rails at a height of 35 – 50 cm.

(3) Top-rails shall be designed to withstand 90kgf (approx. 880N) ~~883 N~~ of horizontal force and mid-rails 70kgf (approx. 690N) ~~686 N~~ of horizontal force and sufficient uprights shall be provided to sustain these forces.

(4) Handrails shall be fit for purpose, of rigid and sound condition, securely fixed, without excessive corrosion, deformity or damage of any kind.

(5) If handrails are temporarily removed for example to permit work to be carried out, the Contractor shall provide alternative safety measures including for example:

(a) Displaying appropriate warning signs;

(b) Assigning a Spotter to direct non-essential Contractor's Personnel away;

(c) Providing alternative fall prevention systems to Contractor's Personnel in that area including for example PFRS or PFAS or safety nets;

(d) Prohibiting entry to the working area of any unauthorised Contractor's Personnel; and

(e) Handrails shall be restored immediately after the necessity for removal has ended.

2.5.6 Toeboards

(1) Toeboards shall be provided to bottom of all handrails to prevent risk of Falling Objects.

(2) Toeboards shall be minimum 10cm high from top edge to the level of the Working Platform, runway or ramp.

(3) Where material is piled to such height that a 10cm toeboard does not provide protection, panelling from floor to mid-rail, or to top-rail shall be provided.

2.5.7 Preventing Falls from Walkways

(1) Walkways

For the purposes of interpretation:

"walkways" mean route or passage for safe movement of pedestrians including walkways, bridge type walkways, covered walkways, ramps, stairways, ladders and stepladders.

(2) Safe Routes

The Contractor shall provide walkways leading to, within and around the Site and any working areas within the Site.

These shall be designed and constructed to ensure the safe passage of Contractor's Personnel and shall be provided with temporary lighting and effectively maintained at all times.

The Contractor shall display signs clearly indicating the location, intended use and any restrictions and extent with directions so that the Contractor's Personnel can adhere to the routes.

Other construction activities will be prevented from obstructing these routes.

(3) Handrails

At any point where there may be a risk of Contractor's Personnel falling from temporary walkways, the Contractor shall provide handrails as specified in JSSS 2.5.5 [*Handrails*].

コメントの追加 **[SS59]:** 12. (40)

コメントの追加 **[SS60]:** No. 40
Modified as JICA commented that the values shall be understandable.
NK has agreed to specify values to indicate original ones.

コメントの追加 **[MJD61R60]:** No comment will change

コメントの追加 **[SS62R60]:** Confirmed.

コメントの追加 **[SS63]:** JICA added in relation with their comment to 6.4.1.
NK agreed.

コメントの追加 **[MJD64R63]:** No comment will change

コメントの追加 **[SS65R63]:** Confirmed.

Alternatively, the Contractor shall provide fall prevention equipment with the same or better functionality.

2.5.8 Preventing Falls by Providing Temporary Working Platforms

(1) The Contractor shall provide a temporary Working Platform where Contractor's Personnel are carrying out any operation at a height 2 m or more above the base and where there is any risk that Contractor's Personnel may fall.

(2) Temporary Working Platforms shall be constructed from steel tubular Scaffolding, system Scaffolding or other safe and secure types.

(3) Temporary Working Platform shall always have handrails.

(4) If handrails are temporarily removed for construction purposes, the Contractor shall take the measures described in JSSS 2.5.5 [*Handrails*].

2.5.9 Preventing Falls from the Ends and Openings of Working Platforms

(1) The Contractor shall take measures to prevent any falls from ends, edges and around any openings in Working Platform.

(2) The Contractor shall provide handrails to all ends, edges and openings.

(3) Alternatively, the Contractor may place covers over any openings, each of sound construction and designed with a bearing capacity of at least twice any likely superimposed load, including any materials, Plant or Contractor's Personnel.

(4) If for any reason it is not possible to provide handrails around working areas, or to provide covers or when covers are temporarily removed for construction purposes, the Contractor shall take the measures described in JSSS 2.5.5 [*Handrails*].

2.5.10 ~~Measures for~~ Preventing Falls during Excavation Works

コメントの追加 **[MJD66]:** To make it consistent with other headings in this section

The Contractor shall take all necessary measures to prevent falls during Excavation Works including for example:

(1) Providing fall prevention systems including temporary handrails or barriers, PFRS, PFAS or rope access.

(2) Taking appropriate measures to ensure that earth slopes do not collapse due to the fixing of any fall prevention system or to any contact of the ropes with the slope surfaces.

(3) Providing safe measures to allow Contractor's Personnel to escape from or move around any excavated slope. If it is not possible to take such measures due to the nature of the work, the Contractor shall install main ropes and have Contractor's Personnel use PFRS or PFAS. In such case, the main ropes shall be anchored securely to prevent them becoming loose or detached.

(4) Installing handrails where the slope shoulder is used as a walkway or passageway.

(5) Installing safe crossings over trench excavations at a maximum of 30m intervals and prohibiting all Contractor's Personnel from crossing on the shoring system.

(6) Providing safe means of access and egress using stairways, ladders, ramps and the like to all excavations such as trench, basement, footing excavations, which are 1.2 m or more in depth, generally requiring no more than 7.5m of lateral travel for Contractor's Personnel.

(7) Prohibiting all Contractor's Personnel from crossing on struts of Earthwork-Support.

2.5.11 ~~Measures for~~ Preventing Falls during Rope Access Work

コメントの追加 **[MJD67]:** Ditto

(1) The Contractor shall take all necessary measures to prevent falls during rope access work including for example:

(a) Installing a lifeline to which the PFAS is attached in addition to the working line to which the PFRS is attached; and

(b) Ensuring that the working line, lifeline and harness have sufficient strength and that they have not suffered any damage, abrasion, deformation or corrosion and that the Contractor's Personnel are trained in the use and that they use them properly.

(2) In relation with the working line, lifeline and harness, the Contractor shall ensure that:

(a) The working line and lifeline are securely anchored to independent rigid supports vertically above the work location and cannot be detached;

(b) The working line and lifeline are of sufficient length to allow the Contractor's Personnel to move up and down safely;

(c) Measures have been taken to prevent cutting or chafing, such as providing covers, where there is a risk that the working line or lifeline may be cut or chafed due to protrusions;

(d) That the working line is anchored to two or more independent strong supports; and

(e) The positioning device shall be securely connected to the working line with connectors and the connecting devices shall be compatible with the working line used.

(3) The Contractor shall provide the following particular information in the Safety Plan and shall ensure that all Contractor's Personnel engaged in rope work are fully qualified and informed when doing so, including advising them of:

(a) Location of each anchorage used to secure the working line and lifeline;

(b) Types and strengths of the working line and lifeline to be used;

(c) Lengths of the working line and lifeline to be used;

(d) Protrusions where the ropes may be cut or chaffed and measures to prevent this; and

(e) Measures to prevent Contractor's Personnel engaged in securing the working line and lifeline to the anchorages from falling.

(4) The Contractor shall also provide measures to prevent the risk of accident to any personnel from Falling Objects; by using covered walkways and PPE.

(5) The Contractor shall appoint an Operation Leader who shall work with the rope work team at all times throughout their assignment and direct the work based on the Safety Plan and perform the following duties:

(a) Inform all Contractor's Personnel engaged in rope work of the content of the Method Statement and Safety Plan before commencement of the work;

(b) Check all equipment to be used on the day prior to commencement of the work, and repair, maintain or replace any equipment immediately if any defect is identified;

(c) Permit the Contractor's Personnel to commence work only after the measures have been taken to provide all working lines, lifelines, PFRS, PFAS and PPE; and

(d) Ensure Contractor's Personnel use PFRS and PFAS correctly and have them fix the PFAS to the life lines.

2.5.12 Further Measures for Contractor's Personnel

The Contractor shall take all necessary further measures to prevent falls during the Works including, for example, taking the following measures before any work commences:

(1) Conduct safety induction and education courses regarding fall risks for all Contractor's Personnel who shall work on locations and operations where there is a risk of falling.

(2) Prohibit the unauthorised removal of any fall prevention equipment and educate Contractor's Personnel on the dangers of this action.

(3) Educate Contractor's Personnel on the proper storage and management of all safety equipment, including for example PFRS, PFAS and PPE.

(4) Stop the work if there is a risk of bad weather such as strong wind, heavy rain, or snow.

2.5.13 PPE ~~for Fall Prevention~~

コメントの追加 **[MJD68]:** To make it consistent with other headings

The Contractor shall comply with the following requirements when Contractor's Personnel are subject to fall risks:

(1) The Contractor shall provide PFRS as follows:

(a) PFRS shall be the same as PFAS specified below but designed to restrict the movement of workers and prevent them from reaching the edge of or any openings in the working area and therefore eliminating the risk of a fall; and

(b) PFRS shall comprise of either a Safety Belt or Safety Harness, together with an anchorage, connectors and other necessary equipment, typically including a lanyard, lifeline and other devices.

(2) The Contractor shall provide PFAS as follows:

(a) The PFAS shall be the full harness type and shall comprise of a body harness, connectors, lanyard, deceleration device, lifeline, anchorage, or suitable combination of these;

(b) The use of a Safety Belt for PFAS is prohibited except where there is any risk of the Contractor's Personnel hitting the lower surface when the full harness type is used and the total fall clearance distance calculated as below, is less than the distance between the point at which a worker would be anchored and any lower level;

The total fall clearance distance for PFAS with a shock-absorbing lanyard is calculated as the total of free fall distance, deceleration distance, D-ring shift, back D-ring height, and safety factor. (Refer to OSHA Technical Manual General Information, Section V: Chapter 4 Fall Protection in Construction, III. Measurements for Assessing Fall Hazards and Controls, A. Total Fall Clearance Distance for PFAS.).

(c) PFAS shall withstand the total force exerted on the system by the Contractor's Personnel falling, including the weight of the system itself; and

(d) For shock absorbers, an appropriate specification and type shall be selected according to the free fall distance calculated from the Contractor's Personnel's working position (height of anchor point, length of lanyard, etc.).

(3) The PFRS and PFAS shall bear the name of the manufacturer and the date of manufacture and shall be easily visible.

(4) Inspection of any safety equipment.

Before starting work using PFRS or PFAS, the systems and anchorages to which the systems are to be attached shall be inspected and defective, damaged, worn-out or missing parts or components shall be replaced.

2.5.14 Ladders and Stepladders

For further requirements, refer to JSSS 6.4 [*Walkways*].

2.5.15 Work on Roofs and Other Areas

(1) Where Contractor's Personnel are carrying out work on roof at a height of 2 m or more, PFRS or PFAS shall be used with secure and safe anchorages.

(2) The Contractor shall, ensure that PFRS or PFAS are inspected before each use and declared safe for use with no defective, damaged, worn-out or missing parts or components.

(3) Prevention of Fall Risks on Floors, Fragile Roofs and Other Surfaces

When working on, accessing or crossing, floor or roof areas (including uncompleted areas under construction), or fragile roofs such as those covered with slates, tiles or other non-loadbearing coverings or where there is any risk of breaking and/or falling through such areas, the Contractor shall provide continuous bearing boards for workers to walk on, with a minimum width of 60 cm or sufficiently wider to provide safe transit and where necessary to spread the bearing load on the surface and avoid penetration. The boards shall be fixed together and secured to the underlying surface by tying with ropes or clips to prevent any movement.

Unless otherwise approved by the HSO, handrails shall be provided to one or both sides.

If the underlying surface or roofing is too fragile for such measures and access is required, the Contractor shall provide an independent Scaffolding boarded walkway with handrails both sides, which does not bear upon the existing roof but that is supported independently by a Scaffolding structure.

(4) Demolition or Alteration of Buildings and Structures

When carrying out demolition or alteration of buildings or structures and where there is a risk of Contractor's Personnel falling, the Contractor shall take the following measures:

(a) Appoint an Operation Leader to be engaged on the work;

(b) Safely supervise the work; and

(c) Inform and train Contractor's Personnel engaged in the said work so that they are aware in advance of the work methods and procedures.

2.5.16 Safety Nets

(1) The Contractor shall provide safety nets when workplaces are more than 7.50m above the lower ground level or water surface level and where the use of another type of fall prevention system is impractical or has been removed.

(2) Operations shall not be undertaken until the net is in place and has been inspected and tested.

(3) Nets shall extend 2.5m beyond the edge of the work surface where Contractor's Personnel may be at risk and shall be installed as close under the working surface as practical but in no case more than 7.50m below such work surface.

(4) Nets shall be hung with sufficient clearance to prevent user's contact with the surfaces or structures below. Such clearances shall be determined by impact load testing.

(5) The mesh size of nets shall not exceed 15 cm by 15 cm. All new nets shall bear a label of proof test from the manufacturer that they can withstand ~~23,700 Nm~~ 17,500 lbf・ft (approx. 23.7 Nm) minimum impact resistance. Edge ropes shall provide a minimum breaking strength of ~~22,261N~~ 5,000 lbf (approx. 22.3 kN).

(6) Forged steel safety hooks or shackles shall be used to fasten the net to its supports.

コメントの追加 **[SS69]:** As same as comment No.40, original unit and SI Unit are specified.

コメントの追加 **[MJD70R69]:** No comment will change

コメントの追加 **[SS71R69]:** Confirmed.

2.6 FALLING OBJECTS

2.6.1 General

The Contractor shall take all necessary measures to avoid danger and prevent damage and injury to Contractor's Personnel, Employer's Personnel and any other persons including third parties that are on or adjacent to or in the vicinity of the Site whether connected with the Works or otherwise, and who may be at risk from Falling Objects.

In general, this shall be accomplished by:

(1) Providing secure temporary barriers to prevent or capture Falling Objects, designed by the Contractor to be of sufficient strength to capture all Falling Objects without perforating and where necessary shall be of an aesthetic design to be approved by the Engineer.

(2) Providing a safe means of raising and lowering Goods, tools, waste and debris.

(3) Providing an exclusion zone with temporary barriers and all other necessary measures to prevent persons and traffic from entering areas where Falling Objects could be a risk, including providing pedestrian and traffic diversions.

Exclusion zone shall also be provided where protective mesh sheets or toeboard are not installed or where they are temporarily removed due to the nature of the work.

(4) Using PPE.

(5) Providing coloured warning tape, barriers and signage warning of "DANGER FALLING OBJECTS" in addition to all other preventive measures.

2.6.2 General Preventive Measures

(1) All horizontal boarded areas of Scaffolding shall be provided with substantial and continuous toeboards to all edges in accordance with JSSS 2.5.6 [*Toeboards*].

(2) Mesh sheet (debris net) shall be provided under and around all edges to cover all openings of Scaffolding horizontal boarded areas.

(3) Continuous and secure debris nets shall be provided to vertical sides of all Scaffolding or openings of external walls where there is no Scaffolding.

(4) Safe walkways with secure roof and walls shall be provided over entrances and exits.

(5) Protective canopies, safety fans or projecting shelves shall be provided to the edge of all roofs and to all vertical faces wherever there is a risk particularly over entrance and exits, working areas, walkways and roads, including those on areas beyond the Site boundary.

(6) Protective roofs shall be provided wherever there is a risk over working areas, walkways, footpaths and roads.

(7) All protective structures including roofs, canopies, safety fans, projecting shelves over walkways shall be fit for the purpose intended and provide a secure protective barrier capable of supporting Falling Objects and of sufficient size and dimensions to give full coverage and protection.

(8) Personnel must be prevented from entering any areas below Scaffolding where there is a risk of Falling Objects through the provision of barriers and signage.

(9) If any protection is temporarily removed then a Spotter shall be assigned to prevent personnel entering the hazard area.

(10) A Spotter shall also be assigned to direct traffic and pedestrians where diversions are necessary.

(11) Use and control of mesh sheets to prevent objects from falling shall be as follows:

(a) Sheet shall have a mesh size of 12 mm or less or a mesh size corresponding to the size of expected Falling Objects;

(b) Sheet shall comply with BS 7955, composed of polyester material, reinforced as necessary to withstand the impact load of Falling Objects;

(c) Sheets that are damaged or which contain any irregularity shall not be used;

(d) If sheet is removed temporarily to suit the work operation, measures must be applied to avoid any risk of accident whilst it is removed and it must be restored immediately after the work operation is completed;

(e) Mesh sheets shall be inspected at least once a week and replaced immediately if any damage is found; and

(f) If there are any Falling Objects on the mesh sheet, these shall be removed before any work starts. The occurrence shall be reported to and investigated by the HSO to prevent any reoccurrence.

(12) When the work place is close to public or private areas, roads, footpaths, buildings or houses and the like along or outside the Site boundary and where there is any risk that Falling Objects could endanger the safety of traffic and third parties in such areas, and in addition to the above preventive measures, the Contractor shall take all responsibility, make all necessary arrangements with such third parties and/or all relevant authorities, insure, serve all notices, pay all charges and provide all necessary protective services and facilities including:

(a) Provision of mesh screens, safety fans, projecting shelves, temporary roofs over walkways or the like to protect such public or private areas, roads, footpaths, buildings or houses and all property, traffic, pedestrians and other persons thereon; and

(b) Safe and efficient diversion of all traffic and persons (in addition to the above or if the above measures cannot be taken) by providing all temporary barriers, signals, lighting and signs and placing a Spotter to direct traffic and pedestrians.

2.6.3 Falling Tools and Equipment

(1) The Contractor shall take appropriate measures to avoid the risk of injury or damage arising from dropped or falling tools including for example the following:

(a) Securing tools and materials;

(b) Use tool holsters, pouches, lanyards, etc.;

(c) Use debris nets, catch platforms or canopies to catch or deflect falling tools; and

(d) Use tethered tools, either with built-in connection points placed by the manufacturer or retrofitted connection points and connect tools to a lanyard. Tools can either be connected to a worker through a tool belt, harness or wristband, or anchored to a fixed structure.

2.6.4 Safety ~~Preventive~~ Measures against Dust and Debris

コメントの追加 **[MJD72]:** To make consistent with other headings

(1) For work where there is a risk of ejected or windblown dust and debris, (for example from stone crushing, concrete batching, cutting and grinding operations and the like), the Contractor shall:

(a) Enclose areas where such operations are taking place and provide protective screens or covers on storage areas;

(b) Maintain equipment and tools in good condition, use of covers and safety guards and procedures for preventing danger due to tool breakage etc.; and

(c) Ensure that workers use appropriate PPE such as head, face and eye protection to

prevent accident or injury.

(2) In strong winds and storms, the Contractor shall take measures to prevent wind-borne materials, etc. according to JSSS 2.7.3 [*Safety Measures for Strong Wind and Storms*].

2.6.5 Safety ~~Preventive~~ Measures against Dropping Objects

(1) The Contractor shall prohibit Contractor's Personnel from throwing or dropping objects (e.g. Scaffolding clips), generally and in no event from heights of 3m or above.

(2) The Contractor shall use a crane to bring objects down from heights of 3m or above. Alternatively, the Contractor may provide enclosed chutes to bring down objects and in addition, shall prohibit entry to the chute area or assign a Spotter.

(3) Chutes shall be designed to prevent objects being scattered over the surrounding area.

2.6.6 Preventing ~~Prevention of~~ Accumulation of Goods at Height

(1) The Contractor shall prohibit the accumulation and storage of Goods at high levels particularly on Scaffolding and in locations where such Goods are at any risk of falling due to the effect of wind, vibration, water or gradient.

(2) Goods shall generally not be stored or allowed to accumulate within 1m of platform or work floor edges and openings or the like.

(3) When temporarily stored at height, Goods shall be restrained by ropes or sheets to prevent them from falling or slipping.

(4) Goods that are likely to scatter or spread, shall be suitably constrained by tying, boxing or bagging.

2.6.7 Working Above or Below Other Persons

(1) As a general and prevailing rule, the Contractor shall prohibit his workers from working concurrently above or below other persons. To achieve this the Contractor shall carefully coordinate the work location, content, timing of the work operations between his assigned workers.

(2) In exceptional circumstances where this is unavoidable due to the nature of the work, the Contractor shall increase the supervision and the safety procedures described in this Section to ensure that the risk from Falling Objects is avoided. Workers shall be given further training, provided with PPE and additional working equipment (e.g. slings for tools, safety nets and/or hanging bags) in order to provide additional protection and a Spotter shall be assigned while such overhead operations are being carried out.

2.6.8 Loose Rock, Boulders and the like

(1) If loose rock, boulders, trees and the like, are positioned above working areas and where there is any risk that these may pose a danger to Contractor's Personnel or Contractor's Equipment working below, unless otherwise instructed by the Engineer, the Contractor shall carefully remove such items and if necessary:

(a) Propose further safety measures to the Engineer;

(b) Consult with the Engineer and if appropriate, obtain the Engineer's Instructions for the required further measures to be taken, such as installation of temporary protective barriers; and

(c) Prohibiting Contractor's Personnel from entering the working areas until the above items have been removed or the further measures have been taken.

コメントの追加 **[MJD73]:** To make consistent with other headings

コメントの追加 **[MJD74]:** Ditto

2.7 ADVERSE WEATHER REQUIREMENTS

2.7.1 Preventive Measures

(1) Whenever adverse climatic conditions render it dangerous to continue, the Contractor shall stop affected work at the Site, take preventive measures to ensure the safety of all Contractor's Personnel engaged on that work and inform the Engineer accordingly.

(2) Before, during or after adverse climatic conditions, the Contractor shall:

(a) Stop work at heights if there is any danger of falling;

(b) Stop work if there is a possibility that such work may be dangerous due to possibility of electrical shock, slippery conditions or poor visibility and the like during rain, snow or fog, and inform the Engineer accordingly;

(c) Inspect the Works and all Goods intended to be incorporated in the Works or used thereon (including any temporary structures) for damage and risk of causing any danger before resuming work. If any damage or risk is found, the Contractor shall immediately take necessary action to prohibit entry in accordance with JSSS 2.3 [*Prohibition of Entry*], inform the Engineer accordingly and if appropriate, request his instructions; and

(d) Inspect Goods for damage and risk of any danger before resuming work. If any damage and risk is found, use Contractor's Equipment and Temporary Works only after making the necessary repairs or replacement.

2.7.2 Safety Measures for Heavy Rain

When heavy rainfall takes place or is anticipated at the Site and the surrounding area, the Contractor shall:

(1) Take measures to prohibit entry in accordance with JSSS 2.3 [*Prohibition of Entry*] at the following locations:

(a) Places where landslides could be anticipated;

(b) Places where there is a risk of flow of material and equipment and soil runoff; and

(c) Places where there is a risk of damage due to flash floods, lake or river flooding.

(2) Take measures to prevent the Goods from being submerged, washed away or overturning, for example preparing, wherever possible, stock yard at a safe place, evacuating materials and equipment to a safe place, etc.

2.7.3 Safety Measures for Strong Wind and Storms

For strong wind and storms at the Site and the surrounding area, the Contractor shall:

(1) Take measures to prevent capsize, overturn or movement of Contractor's Equipment particularly tall equipment such as cranes, pile drivers, pile drilling rigs and the like.

Where possible, lower the boom of tall equipment and tie to a secure anchor with steel cable to ensure stability and prevent any risk of overturning.

(2) Always store and/or if necessary evacuate Goods to a sufficient distance away from overhead power and communication lines to prevent damage and injury.

(3) Take the following measures, as necessary, for Scaffolding and Working Platforms.

(a) Remove or furl mesh sheets to reduce wind load;

(b) Prevent Scaffolding from collapsing or sliding by dismantling Scaffolding or adding or reinforcing wall connectors;

(c) Dismantle or reinforce Scaffolding projecting from buildings by supporting ropes, cables or additional struts and bracing; and

コメントの追加 **[MJD75]:** To make consistent with other headings

コメントの追加 **[MJD76]:** To make consistent with other headings

(d) Securing Goods on Scaffolding, or lowering them to ground level.

(4) Discontinue work at elevated places.

(5) Take measures to prevent scattering of Goods, waste and debris.

2.7.4 Safety Measures for Heavy Snow and Ice

For heavy snow or ice at the Site and the surrounding area, the Contractor shall:

(1) Take fall prevention measures in snow such as setting of poles or red flags to demarcate roads, footpaths and waterways.

(2) Take fall prevention measures for workers in icy conditions or snow, by ice or snow removal on roads, platforms, stairs, ramps, slopes, passages, Scaffolding, canopies, safety fans, projecting shelves and the like.

(3) Remove snow from roofs, canopies and signs, notice boards.

(4) Prohibit works on Scaffolding, Working Platforms or staging if snow or ice is present except after its careful removal.

2.7.5 Safety Measures for Lightning

(1) Where there is any risk that lightning may affect work on or near tall objects, or near explosive or conductive metals, the Contractor should recognise lightning as an occupational hazard and take precautions to prevent exposure of all Contractor's Personnel thereto.

(2) Before commencing any outdoor work, the HSO shall ensure that local weather forecasts have been checked and wherever necessary and possible, that work has been rescheduled to avoid ~~workers~~ Contractor's Personnel being caught ~~outside~~ in hazardous weather conditions.

(3) When working outdoors, Operation Leaders and workers shall continuously monitor weather conditions so that wherever possible they remain aware of the likelihood of thunderstorms.

(4) The HSO shall identify and inform workers of buildings to be used for shelter when ~~heard~~ thunder is heard or lightning is observed. Such shelters shall be fully enclosed, substantial and preferably shall have earthed electrical wiring and plumbing. ~~Workers~~ Contractor's Personnel shall remain in shelters for at least 30 minutes after hearing the last noise of thunder.

(5) If suitable buildings are not immediately available, ~~workers~~ Contractor's Personnel shall be instructed to shelter in enclosed rubber-tyre vehicles with windows closed and to remain there for at least 30 minutes after hearing the last noise of thunder. Tracked excavators, cranes or similar types of Contractor's Equipment shall not be used.

(6) The Safety Plan shall include lightning safety procedures which shall:

(a) Inform of all required actions when thunder is heard, lightning is seen ~~personnel hear thunder or see lightning~~, or perceive other signs of approaching thunderstorms is observed;

(b) Indicate how information is to be disseminated amongst personnel on the Site;

(c) Identify locations and requirements for safe shelters;

(d) Indicate response times necessary for all personnel to reach safe shelters; and

(e) Specify methods to determine when to stop and resume affected work activities.

(7) The Contractor shall display signs with information on lightning safety.

(8) The Contractor shall provide adequate training to all personnel on lightning safety with

コメントの追加 **[MJD77]:** To make consistent with other headings

コメントの追加 **[MJD78]:** To make consistent with other headings

コメントの追加 **[SS79]:** 13. (42)

コメントの追加 **[SS80]:** No.42
JICA replaced, added and deleted as shown in red letters with blue shading.
NK agreed.

コメントの追加 **[MJD81R80]:** No comment will change

コメントの追加 **[SS82R80]:** Confirmed.

the safety induction training required by JSSS 1.20 [*Safety Induction Training*].

(9) Unless otherwise determined to be safe by the HSO, the Contractor shall prohibit any hazardous exposed work and external work at heights during thunder storms including for example:

(a) Work on or from Scaffolding;

(b) Work ~~on or by~~ with, on or in the vicinity of cranes or hoists or similar Contractor's Equipment;

(c) Work on tops of walls, exposed, elevated slabs or roofs;

(d) ~~work on the~~ Erection or removal of steel structures; ~~and~~

(e) ~~Work on the~~ Erection of steel reinforcement and other metal components.

(f) Outdoor work of power utility; and

(g) Work of plumbing and pipe fitting.

2.7.6 Safety Measures for Earthquake and Tsunami

To the extent that time is available and forewarning is given, the Contractor shall evacuate workers to the designated meeting place in the event of earthquakes or tsunamis when the relevant authority issues a warning for the occurrence or prediction of earthquakes or tsunamis.

2.7.7 Inspection ~~of Temporary Works after Adverse Weather and Earthquake~~

Following the occurrence of any adverse weather or after any earthquake and before re-commencing any work, the Contractor shall:

(1) Perform a visual inspection.

(2) Check all measured values of any instruments to ensure the safety of Temporary Works.

(3) When abnormality is found in instruments, recalibrate or replace them.

(4) If any damage or fault is found in the TW, immediately carry out repair, replacement and/or reinforcement works, as necessary.

(5) Keep the Engineer informed of inspection and monitoring results.

コメントの追加 **[SS83]:** 13. (42)

コメントの追加 **[SS84]:** JICA comment that they cannot know what kind of work on cranes is expected. (Operators work in cranes.), so "on" may not necessary.
Can you show example what you assume work on cranes.

コメントの追加 **[MJD85R84]:** "On" means for example maintenance or adjustment work on cranes, the jib of which may attract lightning, or similarly to other large Contractor's Equipment.

It can also say, "with, on or in the vicinity of"

"by" means in the "vicinity of".

Please advise of your choice

コメントの追加 **[SS86R84]:** JICA also assumed as you explained assembling, repair, etc. work on jib.
I want to replace with "with, on or in the vicinity of".

コメントの追加 **[SS87]:** JICA added as the guideline stipulates.
NK will add them to finish our work.

コメントの追加 **[MJD88R87]:** Power Utility - No comment

"Plumping" should be "Plumbing"

We will correct

コメントの追加 **[SS89R87]:** Confirmed.

コメントの追加 **[MJD90]:** To make consistent with other headings

コメントの追加 **[MJD91]:** To simplify headings

2.8 FIRE PREVENTION

2.8.1 ~~Fire Prevention and Firefighting~~ Measures and Facilities

コメントの追加 **[MJD92]:** To simplify headings

Unless otherwise specified in the Particular Safety Specification, the Contractor shall take measures and provide facilities for fire prevention and fire-fighting and shall ensure that such measures are readily available and at all times at the Site and at any offices and accommodation for Contractor's and Employer's Personnel.

(1) Fire Response Plan:

The Contractor shall:

(a) Prepare a Fire Response Plan detailing the proposed fire prevention and fire-fighting measures and facilities and include this as a part of the Safety Plan;

(b) Designate a person (or persons) responsible for fire prevention, fire-fighting and also for evacuation in the event of a fire;

(c) Prepare a firefighting training plan as a part of the fire prevention and fire-fighting plan; and

(d) Carry out all training and keep records of such training in accordance with JSSS 1.19.6 [*Records of Education and Training*].

(2) Fire Response Measures and Facilities:

The Contractor shall:

(a) Provide fire hoses, hose-reels, fire hydrants and similar equipment, and temporary water supply where considered necessary by the HSO;

(b) Provide fire extinguishers and fire blankets according to the area and purpose of use, such as for ordinary fires, oil fires, electric fires and the like;

Fire extinguishers shall be regularly inspected, refilled, serviced and certified as such by a qualified and independent safety company approved by the Engineer;

(c) Prohibit smoking anywhere on the Site other than designated smoking areas, and implement effective fire prevention measures by placing buckets filled with water or sand in smoking and other dangerous areas; and

(d) Train Contractors Personnel and ensure that a team or teams is available to respond in the event of a fire and in advance or in place of attendance by any public firefighting service.

2.8.2 ~~Measures for~~ Evacuation

コメントの追加 **[MJD93]:** To simplify headings

In the event of a fire, the Contractor shall facilitate evacuation by:

(1) Creating an evacuation route map if necessary and post this in easy-to-see places.

(2) Display the evacuation routes as necessary at all work places.

(3) Install multiple evacuation routes and staircases for buildings with 2 or more floors and a capacity of 30 people or more.

(4) Establish a communication method to inform the Contractor's Personnel, Employer's Personnel and any other persons that are on the Site so that they are aware of danger and that they must evacuate due to a fire.

2.8.3 Management of Flammable and Combustible Materials

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS and unless otherwise approved by the Engineer, the Contractor shall take necessary measures for fire prevention complying with OSHA 1926.152 [Flammable liquids] and OSHA 1926.153

[Liquefied petroleum gas (LPG)] or other relevant OSHA standards for the use and storage of flammable and combustible materials and gases, including gasoline, kerosene, light oil, heavy oil, creosote oil, gear oil, cylinder oil, and other lubricating oils and organic solvents such as acetone, toluene, LPG and other gases including oxygen, acetylene etc. (hereinafter collectively referred to as "flammable and combustible materials" in this Section).

In addition, the Contractor shall:

(1) Appoint a person who is appropriately qualified, skilled and experienced in handling flammable and combustible materials, to be responsible for the storage and handling flammable and combustible materials and notify the name of such person to the Engineer.

(2) Store flammable and combustible materials in a purpose-built building or compound, fit for the intended purpose, well ventilated and secure, and protecting the stored materials from direct sunlight and extreme heat.

(3) Take measures to prohibit entry to unauthorised personnel and display signage prohibiting the use of flame.

(4) Determine handling methods of flammable and combustible materials, which shall be notified to the Engineer, and ensure Contractor's Personnel are fully aware of the methods.

(5) Provide fire prevention and firefighting facilities appropriate to the stored flammable and combustible materials.

2.8.4 ~~Fire Prevention~~ Measures for Electric and Gas Welding and Cutting

コメントの追加 **[MJD94]:** To simplify headings

The Contractor shall refer to and comply with JSSS 6.8 [*Electric and Gas Welding and Cutting*] for the fire prevention requirements for electric and gas welding and cutting works.

2.9 PPE AND FIRST AID

2.9.1 PPE

(1) General

(a) Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the Contractor shall provide all necessary and required PPE free of charge, to all Contractor's Personnel, ensure that this is used properly, kept in good condition and replaced in the case of being worn-out, lost or damaged;

(b) PPE shall comply with the requirements of this Section;

(c) The Contractor shall ensure as a minimum and mandatory requirement, that all Contractor's Personnel are provided with the following PPE and the Contractor shall make sure that all Contractor's Personnel wear or use such PPE as appropriate whenever they are on the Site:

(i) Head Protection; and

(ii) Protective Footwear.

(d) The following additional PPE shall be provided whenever required by the working environment:

(i) Eye and Face Protection;

(ii) Ear Protection;

(iii) Respiratory Protection;

(iv) PPE for PFRS and PFAS (Safety Harnesses, Safety Belts and the like);

(v) Gloves; and

(vi) Body Protection.

(e) The particular requirements for PPE are not repeated in each Section of JSSS but appropriate PPE must always be provided by the Contractor; and

(f) PPE described in JSSS 2.9.1 (4) to (11) are examples only and not exhaustive, and the Contractor shall provide further PPE at his cost to the Contractor's Personnel when and where any work requires specific PPE.

(2) Additional Inspection, Testing and Maintenance

Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] and unless otherwise required by the manufacturer or approved by the Engineer:

(a) Frequently used PPE shall be inspected, tested and maintained at least once a month; and

(b) Occasionally used PPE shall be inspected before every use and tested and maintained at least once every three (3) months.

The HSO shall also conduct regular checks to ascertain any requirements for the following:

(a) Inventory and reorder supplies;

(b) Expedite any outstanding manufacturer's response on repair or maintenance issues; and

(c) Schedule of training and retraining.

(3) PPE Signage Requirements

(a) The Contractor shall display signage at specific places at the Site where the wearing of PPE is mandatory;

(b) Such signage shall include for example:

"Head Protection Must be Worn"

"Eye* Protection Must be Worn"

(* face, ear or other)

(4) Head Protection

Head protection shall protect workers' heads and necks against injury from falling or flying objects, risk of head bumping, hair getting tangled in machinery, chemical drips or splash, climate or temperature, reduce the impact from tripping or falling and protect against electric shocks.

Head protection shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.1: Applicable Standards for Head Protection

	Standard	Title of Standard
1	JIS T8131	Industrial Safety Helmets
2	ANSI Z89.1	Industrial Head Protection
3	BS EN 397	Industrial Safety Helmets

(5) Protective Footwear

Protective footwear shall protect against foot injury due to crushing by superimposed loads, impact injuries from dropped or Falling Objects, foot injuries from treading on sharp penetrating objects, injuries from electric shock and also shall increase adhesion preventing workers' from slipping and falling.

Protective Footwear shall have a variety of sole patterns and materials to help prevent slips in different conditions, including oil or chemical-resistant soles. It can also be anti-static, electrically insulating or thermally insulating, appropriate footwear shall be selected for the risks identified.

Protective footwear shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.2: Applicable Standards for Protective Footwear

	Standard	Title of Standard
1	JIS T8101	Protective footwear
2	ASTM F2413	Standard Specification for Performance Requirements for Protective (Safety) Toe Cap Footwear
3	BS EN ISO 20346	Personal protective equipment – Protective footwear
	BS EN ISO 20349	Personal protective equipment. Footwear protecting

		against risks in foundries and welding

(6) Eye and Face Protection

Eye and face protection shall protect workers' eyes and face from harmful materials (for example dust, chemicals, liquid splash, flying objects, molten metal, gas and steam, extreme light, flashes and hazardous rays, dirt and debris, etc.).

Eye and face protection can include safety spectacles, goggles, face masks, face shields, visors and the like. Selected protection shall have the right combination of /impact/dust/splash/molten metal eye and face protection for the task and shall be selected for the risks identified.

Eye and face protection shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.3: Applicable Standards for Eye and Face Protection

	Standard	Title of Standard
1	JIS T 8141 JIS T 8142	Personal eye protectors for optical radiations Personal face protectors for welding
2	ANSI Z87.1	American National Standard for Occupational and Educational Personal Eye and Face Protection Devices
3	BS EN 166 BS EN ISO 4007	Personal eye protection. Specifications Personal protective equipment. Eye and face protection. Vocabulary

(7) Ear Protection

Ear protection shall protect workers' hearing against injury from continuous, loud or Intense Noise by providing soundproofing.

The Contractor shall ensure that workers are still able to receive and immediately react to oral instructions and danger warnings when wearing ear protection.

Ear protection shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.4: Applicable Standards for Ear Protection

	Standard	Title of Standard
1	JIS T 8161	Ear protectors
2	ANSI/ASA S12.6	Methods for Measuring the Real-Ear Attenuation of Hearing Protectors
3	BS EN ISO 4869-1 BS EN ISO 4869-2	Acoustics. Hearing protectors. Subjective method for the measurement of sound attenuation Acoustics. Hearing protectors. Estimation of effective A-weighted sound pressure levels when hearing protectors are worn

	BS EN ISO 4869-3	Acoustics. Hearing protectors. Measurement of insertion loss of ear-muff type protectors using an acoustic test fixture
	BS EN ISO 4869-4	Acoustics. Hearing protectors. Measurement of effective sound pressure levels for level-dependent sound-restoration ear muffs

(8) Respiratory Protection Equipment (RPE)

RPE shall protect workers' airways, lungs and related bodily systems against damage and injury from Harmful Substances or from oxygen-deficient atmospheres when other controls are either not possible or insufficient on their own.

RPE shall be selected with due consideration of:

(a) the Hazardous Substance(s) and the concentration in the air (exposure);

(b) the form of the substance in the air (e.g. gas, particle, vapour);

(c) the type of work being carried out; and

(d) the specific wearer requirements, such as other PPE or a need for spectacles.

RPE shall be:

(a) Correct for the Hazardous Substance such that it reduces exposure to the level required to protect the wearer's health; and

(b) Correct for the wearer, task and environment, such that the wearer can work freely and without additional risks due to the RPE.

As for details, refer to HSE publication HSG53 (Fourth edition, published 2013).

RPE shall fit properly and filters shall be of the correct type as each filter is effective for only a limited range of substances. Filters have only a limited life and shall be changed regularly to maintain performance.

When replacing parts such as filters, use only manufacturers original parts, ensure that the correct type is selected and fit in accordance with the manufacturer's instructions.

Where there is a shortage of oxygen or any danger of losing consciousness due to exposure to high levels of harmful fumes, the Contractor shall only use breathing apparatus, never a filtering cartridge.

RPE shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.5: Applicable Standards for RPE

	Standard	Title of Standard
1	JIS T 8151 JIS T 8157	Particulate respirator Powered air purifying respirator
2	BS EN 149: 2001+A1: 2009 BS EN 14593-1: 2018	Respiratory protective devices. Filtering half masks to protect against particles. Respiratory protective devices. Compressed air line breathing devices with demand valve. Devices with a full-face mask.

コメントの追加 **[SS95]:** No. 44
JICA requested to add the following sentence because HSG53 contains many other stipulations.

As for details, refer to HSE publication HSG53 (Fourth edition, published 2013)

コメントの追加 **[MJD96R95]:** No comment will change

コメントの追加 **[SS97R95]:** Confirmed.

コメントの追加 **[SS98]:** 14. (44)

コメントの追加 **[SS99]:** These are placed on left arrangement from center.

コメントの追加 **[MJD100R99]:** No comment will change

コメントの追加 **[SS101R99]:** Confirmed.

3	ANSI Z88.2-2015	Practices for Respiratory Protection

(9) Safety Harnesses and Safety Belts

PPE for PFRS shall prevent the risk of workers falling from a height or sliding down slopes.

PPE for PFAS shall arrest a worker in a fall from a height or sliding down slopes.

For further requirements on PPE for PFRS and PFAS, refer to JSSS 2.5.13 [*PPE ~~for Fall Prevention~~*].

コメントの追加 **[MJD102]:** Heading changed

PPE for PFRS and PFAS shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.6: Applicable Standards for PPE for PFRS and PFAS

	Standard	Title of Standard
1	JIS T8165	Personal fall-arrest systems
2	ANSI Z359.0 to Z359.16	ANSI/ASSE Z359 Fall Protection and Arrest Standards Package
3	BS EN 361	Personal protective equipment against falls from a height. Full body harnesses

(10) Gloves

Gloves shall protect workers' hands from electric shocks, sparks during welding and fusing work, molten metal, heated metal, etc., and shall reduce the vibrations transmitted to workers' hands by tools, machines, etc.

Gloves shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.7: Applicable Standards for Gloves

	Standard	Title of Standard
1	JIS T 8113 JIS T 8114	Protective Leather Gloves for Welders Vibration isolation gloves
2	ASTM D120 ANSI S2.73	Standard Specification for Rubber Insulating Gloves Mechanical vibration and shock – Hand-arm vibration
3	BS EN 60903 BS EN 12477	Live working. Gloves of insulating material Protective gloves for welders

(11) Body Protection

If the HSO considers necessary, Contractor's Personnel shall be supplied with and shall wear suitable body protection appropriate for the working environment.

Risks such as from chemical or metal splash, spray from pressure leaks or spray guns, contaminated dust, impact or penetration, entanglement of own clothing, hot and extremely cold work; and the like shall be considered and avoided through the provision

where necessary of special protective clothing. This may include for example flame-retardant, anti-static, chain mail, chemically impermeable, and high-visibility clothing and the like.

Body Protection shall be selected and provided for the risks to be identified.

Body Protection shall be kept reasonably clean and shall be replaced when worn out or damaged.

2.9.2 First Aid

(1) General

The Contractor shall ensure that trained personal and adequate first aid equipment and supplies shall be readily available at the Site. First aid kits shall be stored at selected locations on the Site where they are most likely to be needed; they must be accessible with the minimum of delay.

(2) Training

A representative number of Contractor's Personnel selected by the HSO shall be trained in first aid (including CPR) to a minimum standard of that recommended by the International Federation of Red Cross and Red Crescent Societies standard course or equivalent.

(3) First Aid Kits

(a) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for first aid complying with OSHA 1910 Subpart K [Medical and First Aid];

(b) First Aid kits shall comply with ANSI Z308.1 and unless otherwise specified in the Particular Safety Specification, Class A first aid kits shall be provided at the working area(s) on Site and one (1) Class B safety kit shall be provide at the sick bay;

(c) All persons working at the site need to be aware of their purpose and location. Adequate signage shall be provided at the Site to show the location of the first aid kit(s);

(d) Each first aid kit shall contain the specified items and quantities listed in ANSI Z308 as follows:

(i) Adhesive Bandage;

(ii) Adhesive Tape;

(iii) Antibiotic Application;

(iv) Antiseptic;

(v) Breathing Barrier;

(vi) Burn Dressing (gel soaked);

(vii) Burn Treatment;

(viii) Cold Pack;

(ix) Eye Covering, with means of attachment;

(x) Eye/Skin Wash;

(xi) First Aid Guide;

(xii) Hand Sanitiser;

(xiii) Medical Exam Gloves;

(xiv) Roller Bandage;

(xv) Scissors;

(xvi) Splint;

(xvii) Sterile pad;

(xviii) Tourniquet;

(xix) Trauma pad; and

(xx) Triangular Bandage.

(e) Each first aid kit shall contain any additional items and quantities that may be necessary according to the requirements and location of the Works;

(f) The Contractor shall ensure that the following additional items are provided with each first aid kit:

(i) A list of emergency phone numbers;

(ii) Flashlight and extra batteries; and

(iii) Bottled drinking water.

(g) To prevent disease transmission when giving first aid, first aid kits shall contain PPE such as disposable gloves, CPR breathing barriers, eye protection and like supplies;

(h) First aid kits shall be inspected at least once a month;

The HSO shall also conduct regular checks to ascertain any requirements for the following:

(i) Inventory and reorder supplies;

(ii) Expedite any outstanding manufacturer's response on repair or maintenance issues; and

(iii) Schedule of training and retraining.

(4) Automated External Defibrillator – AED.

(a) Unless otherwise specified in the Particular Safety Specification, and amongst any other first aid equipment to be provided by the Contractor, the Contractor shall provide at least one (1) AED at the Site;

(b) The AED shall be stored at a selected location on the Site where it is most likely to be needed and it must be accessible with the minimum of delay;

(c) All personnel at the site shall be kept informed of the purpose and location and the Contractor shall train a sufficient number of personnel in its use;

(d) Adequate signage shall be provided at the Site to show the location of the AED together with instructions for its use;

(e) The AED shall be regularly inspected in accordance with the manufacturer's instructions and as follows:

(i) Visually inspect looking for dirt, damage, or contamination;

(ii) Inspect electrodes ensuring that they are unexpired and in their original, sealed packages, two sets shall be provided;

(iii) Test primary battery;

(iv) Make sure a backup battery is stored with the AED and test backup battery; and

(v) Keep the AED charged and check it is maintaining a charge.

The HSO shall also conduct regular checks to ascertain any requirements for the following:

(i) Inventory and reorder supplies;

(ii) Follow up with the manufacturer on maintenance issues; and

(iii) Schedule training and retraining.

(f) The AED shall ensure a level of performance that is equal to or greater than the following standards:

Table 2.9.7: Applicable Standards for AED

	Standard	Title of Standard
1	BS EN 60601-2-4:2011+A1:2019	Medical electrical equipment, Part 2-4: Particular requirements for the safety of cardiac defibrillators

CHAPTER 3: EXISTING UNDERGROUND, CONCEALED AND OVERHEAD SERVICES

3.1 UNDERGROUND AND CONCEALED SERVICES

3.1.1 General

(1) This Section applies where there are existing underground or concealed pipes, cables, wires, ducts and the like within the Site (hereinafter collectively referred to as "Underground or Concealed Services"), which may require locating, preserving, avoiding and protecting, diverting, removing, relocating or replacing by the Contractor. The Employer shall provide, at the request of the Contractor, such reasonable assistance as to allow the Contractor to carry out such work.

(2) If Underground or Concealed Services are the property of a relevant authority and unless otherwise specified in the Particular Safety Specification, the Contractor shall, in accordance with the agreement between the Employer and the owner of Underground or Concealed Services regarding the actual scope of work to be carried out, comply with the official regulations and procedures of the authority.

(3) In the case of Underground or Concealed Services which are the property of a third party, the Contractor shall take the procedure of obtaining permission for the work mentioned in (4) below.

(4) In accordance with the agreement between the Employer and the owner of Underground or Concealed Services regarding the actual scope of work to be carried out, permission for its execution and details of the procedures and requirements (including responsibility for insurance and safety procedures), the Contractor (with reasonable assistance of the Employer) may consult with the owner of Underground or Concealed Services to obtain permission to execute the work following the preparations described in JSSS 3.1.2 [*Preparation and Work Planning*] as well as the requirements of the Contract and the instruction of the Engineer.

(5) In the case of Underground or Concealed Services which are the property of the Employer, the permission mentioned in (4) above shall be deemed to have been provided by the Employer subject to the preparations described in JSSS 3.1.2 [*Preparation and Work Planning*].

3.1.2 Preparation and Work Planning

(1) Unless otherwise specified in the Particular Safety Specification, the Contractor shall make the following preparations prior to commencing any work for locating, protecting, diverting, removing, replacing or the like of any Underground or Concealed Services:

(a) Prepare a Method Statement describing the measures for carrying out the required work and ensuring the safety of all persons engaged thereon;

(b) Prepare an emergency call list and communication procedure;

(c) Obtain particular information from the Employer or relevant authority on the procedures for emergency disconnection/de-energisation of the Underground or Concealed Services in case of an accident;

(d) Provide and use cable avoidance tools or cable locators, trace the position and routes on ground surfaces, walls and floors of all Underground or Concealed Services, mark routes with paint and/or wooden pegs or barriers and clear signage and ensure that no unauthorised work take place within the area;

(e) Conduct careful exploratory hand excavation to locate the exact position, depth and route of the Underground or Concealed Services and proceed to expose and protect same or prepare for the required work; and

(f) The Method Statement shall be revised based on the information obtained from the above locating and exploratory work.

(2) In case Underground or Concealed Services of which existence are predicted at the Site, but not shown in the Contract, the Contractor shall inform the Engineer of the existence for the Engineer's instruction to the Contractor.

(3) Machine excavation shall not be allowed when there is any risk that Underground or Concealed Services may exist in the location or vicinity of the excavation.

(4) The Contractor shall take all measures necessary to ensure the protection and safety of road traffic, pedestrians, Contractor's Personnel and any other persons affected by or potentially affected by the Works as required by the Contract and also by JSSS including JSSS 2.2 [*Risk Control Around the Site*].

3.1.3 Requirements and Precautions

Unless otherwise specified in the Particular Safety Specification, the Contractor shall:

(1) Protect and secure all Underground or Concealed Services throughout the execution of the Works and avoid all damage to such services and adjacent areas, particularly when backfilling, compacting and reinstating surfaces.

(2) Take care not to damage the Underground or Concealed Services when using power tools for example asphalt cutting machine to break through paved surfaces above Underground or Concealed Services.

(3) Take care to safely expose, support and protect any drains, other services (new or existing) which follow or cross the route of Underground or Concealed Services.

(4) Reinstate surface paving with material and methods specified, without leaving any difference in level with surrounding pavement and replace all surface markings and signage.

(5) Adequately test all Underground or Concealed Services after completing any diversion, replacement or alteration work, to ensure the safety and integrity and to avoid any future risk of injury, leakage or pollution.

(6) Implement strict safety and fire prevention measures throughout the work including prohibiting the use of equipment that can create any damage or fire hazard (such as welding, cutting and electrical equipment) in the vicinity of any Underground or Concealed Services conveying flammable, combustible or explosive liquids or gases.

(7) Be aware of and avoid electric shock when excavating for or near any cables, wires or cable ducts, ensure the safety of all Contractor's Personnel and ensure the provision and use of PPE.

(8) Be aware of and avoid subsidence or collapse of excavations due to Contractor's Equipment, vehicles, other equipment or other activities being too close to any excavation.

(9) Provide adequate temporary barriers, signage, markings and lighting to all areas where work on or adjacent to Underground or Concealed Services is taking place.

(10) Assign a full time Spotter in accordance with the requirements of JSSS 2.4 [*Spotters*] when work in progress poses any risk to the Underground or Concealed Services, Contractor's Personnel or the Works.

(11) Provide electrical cable marker tiles over all buried wires, cables and cable ducts to warn and protect against the risk of future mechanical damage to same.

(12) Provide permanent markers or signage at the surface to warn of the presence, route and any danger of any Underground or Concealed Services.

(13) Prepare as-built drawings of Underground or Concealed Services after completion of the associated work showing accurate positions, depth, sizes, routes and details and submit to the Engineer.

3.1.4 Instruction for ~~Information to~~ Contractor's Personnel

コメントの追加 **[MJD103]:** To make consistent with 4.1.4 and 5.2.1

Prior to the start of work to or in the vicinity of Underground or Concealed Services, the Contractor shall instruct relevant Contractor's Personnel of the following:

(1) Location of live cables and equipment.

(2) Risk of electric shock from live cables or equipment.

(3) Separation distances from live cables and equipment.

(4) Work procedure.

(5) Preventive measures against electric shock.

(6) PPE to be used.

(7) Electric shock treatment in accordance with JSSS 3.1.5 [*Electric Shock Treatment*].

(8) Response in the event of an accident in accordance with JSSS 1.24 [*Accident Response Plan*] and JSSS 1.25 [*Measures at the Time Accidents Occur*].

(9) Appropriate procedures in the case of accidents arising from contact with or damage to any other services.

3.1.5 Electrical Shock Treatment

The following measures shall be taken in the event of an electric shock accident.

(1) Prohibit workers from touching the chassis or body of any Contractor's Equipment or materials that have become electrified by any live circuit and keep all Contractor's Personnel well away from such equipment, materials and the working area.

(2) When the unit of Contractor's Equipment which is in contact with or in close proximity to a live circuit does not get an electrical shock, the operator shall immediately move the equipment to an adjacent safe location.

(3) When it is not possible to move the Contractor's Equipment away, the operator shall remain in the cabin until the affected live circuits are de-energised.

(4) Prevent secondary electric shock accident by permitting only those who have received training in electrical rescue to rescue the casualties of an electric shock accident.

(5) Immediately perform primary lifesaving measures such as CPR, if necessary use an Automated External Defibrillator (AED) and call for emergency medical support.

(6) Report to the Engineer in accordance with JSSS 1.25 [*Measures at the Time Accidents Occur*] and where applicable to the representative of the relevant authority.

3.2 OVERHEAD SERVICES

3.2.1 General

(1) This Section applies where there are exposed or overhead power or communication cables, wires, ducts, pipes and the like within the Site (hereinafter collectively referred to as "Overhead Services"), and which may require preserving, protecting, diverting, removing, relocating or replacing by the Contractor. The Employer shall provide, at the request of the Contractor, such reasonable assistance as to allow the Contractor to carry out such work.

(2) If Overhead Services are the property of a relevant authority and unless otherwise specified in the Particular Safety Specification, the Contractor shall, in accordance with the agreement between the Employer and the owner of Overhead Services regarding the actual scope of work to be carried out, comply with the official regulations and procedures of the relevant authority.

(3) In the case of the Overhead Services which are the property of a third party, the Contractor shall take the procedure for the works mentioned in (4) below.

(4) In accordance with the agreement between the Employer and the owner of Overhead Services regarding the actual scope of work to be carried out, permission for its execution and details of the procedures and requirements (including responsibility for insurance and safety procedures), the Contractor (with reasonable assistance of the Employer and Engineer) may consult with the owner of Overhead Services to obtain a permission of the owner of Overhead Services to execute the works following the preparations described in JSSS 3.2.2 [*Preparation and Work Planning*] as well as the requirements of the Contract and the instructions of the Engineer.

(5) In the case of Overhead Services which are the property of the Employer, the permission mentioned in (4) above shall be deemed to have been provided by the Employer subject to the preparations described in JSSS 3.2.2 [*Preparation and Work Planning*].

3.2.2 Preparation and Work Planning

(1) Unless otherwise specified in the Particular Safety Specification, the Contractor shall make the following preparations prior to commencing any work for protecting, diverting, removing, replacing or the like of any Overhead Services:

(a) Prepare a detailed Method Statement describing the measures for carrying out the required work and ensuring the safety of all persons engaged thereon;

(b) Prepare an emergency call list and communication procedure; and

(c) Obtain particular information from the Employer or relevant authority on the procedures for emergency de-energisation of the Overhead Services in case of an accident.

3.2.3 Requirements and Precautions

Unless otherwise specified in the Particular Safety Specification, the Contractor shall:

(1) Protect and secure all Overhead Services throughout the execution of the Works.

(2) Adequately test all Overhead Services after completing any diversion, replacement or alteration work, to ensure the safety and integrity and to avoid any future risk of injury, leakage or pollution.

(3) Be aware of and avoid electric shock when working near any cables or wires, ensure the safety of all Contractor's Personnel and ensure the provision and use of PPE.

(4) Be aware of and avoid subsidence or collapse of support structures of Overhead Services due to excavations being too close.

(5) Provide adequate temporary barriers, signage, markings and lighting to all areas where work on or adjacent to Overhead Services is taking place.

(6) Provide insulating protective pipe or casings to the Overhead Services.

(7) Create safe zones free from danger arising from the use Contractor's Equipment by demarcating the route and turning ranges and providing adequate signage and barriers.

(8) Prevent Contractor's Equipment, wire ropes or chains from entering the safe zones and limit the moving range of crane jibs and other high equipment.

(9) Assign a full time Spotter in accordance with the requirements of JSSS 2.4 [*Spotters*] when work in progress poses any risk of close proximity or contact with Overhead Services, Contractor's Personnel or the Works.

(10) Maintain a safe separation distance between any charged electrical circuit and Contractor's Personnel, Contractor's Equipment, Scaffolding and any other Temporary Works, wire rope, tools and materials. The separation distance shall be the maximum relevant value shown Table 3.2.1 [*Safe Separation Distances*] any values that may be prescribed by the Laws of the Country or any values that may be prescribed by the regulations of the relevant authority:

Table 3.2.1: Safe Separation Distances

	Circuit Voltage	Separation Distance
1	Extra-high Voltage (7000V and above)	2m (20cm to be added for every 10,000V increase and fraction from 60,000V)
2	High Voltage (600V up to 7000V)	1.2m
3	Low Voltage (Less than 600V)	1m

3.2.4 Instruction for ~~Information to~~ Contractor's Personnel

コメントの追加 **[MJD104]:** To make consistent with 4.1.4 and 5.2.1

Prior to the start of work to or in the vicinity of Overhead Services, the Contractor shall instruct relevant Contractor's Personnel of the same items as listed in JSSS 3.1.4 [*Instruction for ~~Information to~~ Contractor's Personnel*]

3.2.5 Electrical Shock Treatment

The Contractor shall take the measures prescribed in JSSS 3.1.5 [*Electrical Shock Treatment*].

CHAPTER 4: CONTRACTOR'S EQUIPMENT

4.1 GENERAL REQUIREMENTS

4.1.1 Scope

(1) This Chapter specifies the safety requirements for Contractor's Equipment which shall include mobile equipment, static equipment, small equipment, tools and electric power equipment as further described in the following Clauses.

(2) The Contractor shall ensure the safety of all Contractor's Personnel, Employer's Personnel and any other persons that are on the Site, adjacent to the Site and other places where they may be affected by Contractor's Equipment in operation, standby or storage or when such equipment is being maintained or transported.

(3) For additional requirements for hoisting, rigging and cranes, refer to JSSS 5 [*Hoisting and Rigging*].

(4) Any reference to "operator" in this Chapter and elsewhere in JSSS shall be deemed to include "driver" also.

(5) Mobile equipment including wheeled or tracked, self-propelled construction machinery such as:

(a) Surface excavation and spoil movement equipment for bulk excavation, grading and levelling, such as bulldozers, graders and tractor excavators;

(b) Excavators such as backhoes, face shovels, power shovels;

(c) Loaders such as payloaders and face shovels;

(d) Dump trucks for removal or importation of spoil;

(e) Specialist foundation equipment such as pile driving and boring equipment;

(f) Compaction and surface treatment equipment such as smooth or sheepsfoot rollers, pneumatic and vibration rollers, asphalt finishers;

(g) Mobile cranes;

(h) Piling equipment;

(i) Concreting equipment such as ready-mixed concrete trucks and pump trucks;

(j) Demolition equipment such as breakers, concrete crushers and demolition grippers;

(k) Transportation Equipment, such as cars and buses for Contractor's Personnel and trucks and trailers for transporting Goods to, around and from the Site; and

(l) Workboat for Diving Works.

(6) Static equipment includes powered stationary equipment such as:

(a) Stone crushing plants and screening equipment;

(b) Concrete and asphalt concrete batching plants;

(c) Tower cranes, derrick cranes;

(d) Elevators;

(e) Material conveyors;

(f) Air compressors;

(g) Engine Generators, submersible pumps and engine pumps; and

(h) Reinforcement, cutting and bending machines.

(7) Small equipment and tools such as:

(a) Hand steered vibrating rollers;

(b) Plate compactors and vibratory rammers;

(c) Portable conveyors;

(d) Pipe bending machines;

(e) Drills, hammers, breakers, compactors and compressors;

(f) Wood processing equipment;

(g) Independent concrete mixers;

(h) Air extract or blowing equipment for improving the working area environment;

(i) Jack hammers, drills;

(j) Chain saws;

(k) Hand operated equipment such as jacks, winches, lever hoists; and

(l) Hand tools such as wrenches, chisels, hand saw, picks, hammers.

4.1.2 Compliance Standards

(1) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], the Contractor shall comply with the requirements of this Chapter, read jointly with and including the Provision and Use of Work Equipment Regulations 1998 (PUWER), HSE Guidance in UK.

(2) In accordance with these regulations, together with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the Contractor shall ensure that all Contractor's Equipment provided for use upon the Works is:

(a) Suitable and fit for the purpose for which it is intended;

(b) Safe for use, maintained in a safe condition and inspected to ensure it is correctly installed and used and does not subsequently deteriorate;

(c) Used only by people who have received adequate information, instruction and training;

(d) Accompanied by suitable health and safety measures, such as protective devices and controls. These shall include emergency stop devices, adequate means of isolation from sources of energy, clearly visible markings and warning devices; and

(e) Used for the designed and intended purpose.

4.1.3 Manufacturer's Documentation

The Contractor shall obtain a copy of the following official Manufacturer's documentation for all units of Contractor's Equipment:

(1) Safety instructions and recommendations.

(2) Operation, maintenance and repair manual.

The Contractor shall inform all relevant Contractor's Personnel of the content of the same, provide further safety training as necessary and ensure full compliance by all relevant Contractor's Personnel with such instructions and recommendations to assist in enforcing the safe use of Contractor's Equipment.

4.1.4 Instruction for Contractor's Personnel

Further to the requirements of JSSS 1.7 [*Contractor's Safety Plans*], JSSS 1.9 [*Contractor's*

Method Statements] and JSSS 1.15 [*Contractor's Safety Management Activities*], the Contractor shall include details of the following in the Method Statement and Safety Plan for works involving the use of Contractor's Equipment and shall fully inform all relevant Contractor's Personnel associated therewith of all requirements before the commencement of any such operations, such as:

(1) Scope of work, locations and areas, work methods, dimensions, levels and quantities to be achieved.

(2) Types, capacities and numbers of units.

(3) Workplaces, area limits and operational routes, restricted areas, locations of caution signs and fences.

(4) Preservation of safe access, walkways and footpaths around the working areas and transportation areas.

(5) Identities and roles of and location(s) for Spotters and the communication and signalling requirements, including equipment to be used.

(6) Working conditions and required mitigation measures for workers and any other persons against vibration, noise, dust and the like.

(7) Safety measures in the working area, any nearby areas for storage of Dangerous Goods or Hazardous Substances, Hazardous Areas, Operational Areas or areas where Dangerous Work is taking place.

(8) Potential danger to any persons who may be affected by the use of Contractor's Equipment and the required measures to avoid any accident or injury.

(9) Any potential hazards in the use of Contractor's Equipment including those which may create a risk of falling or overturning.

(10) Restrictions to the movement and operation of Contractor's Equipment such as existing structures, foundations, surfaces, underground or overhead services and Dangerous Goods storage.

(11) Measures to be taken in case of breakdown, defect or fault in Contractor's Equipment including location of areas for inspection and maintenance.

(12) Name of the authorised operator for each unit of Contractor's Equipment when authorised operator is necessary to be assigned.

(13) Name and contact of the HSO to inform when there are any requirements for inspection, maintenance and repair of Contractor's Equipment.

4.1.5 Safety Training

(1) The Contractor shall provide the relevant Contractor's Personnel with health and safety training in accordance with JSSS 1.19 [*Safety Training Generally*] taking account of the characteristics of the particular types of Contractor's Equipment and including:

(a) Functions, performance, operation methods, inspection items, inspection method of safety and emergency alarm devices;

(b) Operation procedure, signal and communication method at starting time of the operation, and daily inspection;

(c) Lockout and tagout procedures for shutting down operation, turning off the power, locking the starter and necessary measures for the time of cleaning and inspection of the Contractor's Equipment;

(d) Stop of the operation of the Contractor's Equipment when an abnormality occurs and report to the person in charge;

(e) Prohibition of removal or isolation of safety devices; and

(f) Risks during operation of the Contractor's Equipment.

(2) Particular safety training for transportation equipment operators shall be for the purpose of preventing of traffic accidents on and off the Site and shall include:

(a) Driving rules in general;

(b) Compliance with speed limits, signs, alcohol use, drugs and all other requirements the Laws of the Country;

(c) Driving methods to avoid contact and collision with other persons, cycles, motorcycles and other vehicles;

(d) Driving methods to properly overtake other vehicles and to be undertaken by others;

(e) Driving methods when encountering holes, bumps or obstacles on the road;

(f) Required inspection and maintenance before starting operation; and

(g) Proper use of vehicles including behaviour and control of passengers, prevention of overcrowding, overloading and unauthorised passengers.

4.1.6 Requirements for Operators

Further to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*], the Contractor shall ensure that operators are appropriately qualified, skilled and experienced in operation of the Contractor's Equipment to which they are assigned and duly certified as such by the HSO.

(1) Operators shall safely and competently operate the Contractor's Equipment.

(2) Operators shall be fully aware of the following:

(a) Work procedures, hazards and operation methods;

(b) The need to stop the operation when any defect or abnormality is detected;

(c) The identity of and location(s) for Spotters and the communication and signalling requirements including equipment to be used; and

(d) The procedures in case of emergency.

(3) Operators shall:

(a) Keep all safety devices including emergency-alarm and stop-devices activated;

(b) Keep their assigned unit clean and carry out regular inspections prescribed by the Contractor before start of operation;

(c) Inform the Contractor's maintenance personnel of any apparent defect or maintenance requirements; and

(d) Not use such Contractor's Equipment until any required repair or maintenance is performed.

4.1.7 Signalling

(1) Signalling between operators and any associated workers shall only be carried out by designated personnel.

(2) Spotters shall be located in a safe place and where they can clearly see and be seen by the operator.

(3) When it is not possible for Spotters to give direct visible and audible signals to the operator, other systems including hand-held radios or videophone must be provided and

used.

4.2 INSPECTION, MAINTENANCE AND REPAIR

4.2.1 Requirements Generally

(1) Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the HSO shall ensure that all Contractor's Equipment is inspected, fully maintained and operational when it is mobilised to the Site. Thereafter all Contractor's Equipment shall be inspected, maintained and repaired before the commencement of the first and of all subsequent days of operation.

(2) Inspections shall include all items necessary to ensure the safe performance of the Contractor's Equipment including the following examples and any further requirements due to the characteristics, capability and condition of the Contractor's Equipment and in compliance with the manufacturer's official operation, maintenance and repair manual.

(3) When mobilising Contractor's Equipment to the Site and before commencement of operation, the Contractor shall:

(a) Inspect all units of Contractor's Equipment to ensure that:

(i) all components are installed and functioning; and

(ii) adequate covers and safety guards (to prevent contact with moving parts) are provided and securely fixed.

(b) Ensure as a minimum that the daily and periodical check items have already been inspected and recorded;

(c) Ensure that all inspection and maintenance records are available for inspection by the Engineer if and when required in compliance with JSSS; and

(d) If any inspection and maintenance records are incomplete or not available, the Contractor shall carry out inspections and maintenance to ensure that a full and acceptable record is available for all units of Contractor's Equipment.

In relation with the above, it should be noted that Contractor's Equipment shall be in a working and safe condition and fully compliant with JSSS when it is mobilised to the Site. The Engineer may refuse to accept delivery to the Site any Contractor's Equipment which does not meet the requirements stipulated in JSSS.

(4) The Contractor shall undertake the following daily inspection items, (or at intervals required by the manufacturer's official operation, maintenance and repair manual), carry out any necessary maintenance and repair, and when necessary obtain re-certification of the HSO before any further operation of the Contractor's Equipment is permitted:

(a) Operating condition of engine, gearbox(s), drive shafts, pulleys and main components, emergency stop and safety devices, any defects or abnormalities in covers, doors and enclosures;

(b) Abnormal sounds, vibrations or smell;

(c) Leaks, levels and condition of lubricants, coolant, hydraulic fluid levels, and the like;

(d) Lights and indicators;

(e) Brakes, clutches, steering and operating devices and working devices;

(f) Cables, slings, ropes and chains;

(g) Protective covers are adequately provided over all rotating or moving parts;

(h) Attachments and tools such as buckets, grabs and the like;

(i) Cleanliness of each unit or item of Contractor's Equipment;

(j) Cleanliness of each working area and removal of obstructions;

(k) Availability of emergency kits such as warning flares and triangles, fire extinguisher, first aid kit and the like, as required by the Laws of the Country with the testing and expiration date clearly indicated; and

(l) Any additional inspection items stipulated in the manufacturer's official operation, maintenance and repair manual.

(5) The Contractor shall undertake the following periodic inspection items, (at intervals required by the manufacturer's official operation, maintenance and repair manual), carry out any necessary maintenance and repair, and when necessary obtain re-certification of the HSO before any further operation of the Contractor's Equipment is permitted:

(a) Engine compression pressure, valve clearance and other relevant parts of prime energy unit;

(b) Gearbox, clutch, transmission, propeller shaft, differential and other parts of power transmission devices;

(c) Drive wheels, idling wheels, vertical trunk rollers, belts, tires, wheel bearings and other parts of traveling devices;

(d) Springs, shock absorbers and other parts of suspension devices;

(e) Left and right rotation angle of steering wheel, knuckle, rod, arm and other parts of control devices;

(f) Brake capacity, brake drum, brake shoe and other parts of braking systems;

(g) Blades, booms, link mechanisms, buckets, wire ropes and other parts of work equipment;

(h) Hydraulic pump, hydraulic motor, cylinder, safety valve and other parts of hydraulic equipment;

(i) Voltage, amperage and relevant performance and components of electrical systems;

(j) Body, operating devices, head guards, back stoppers, access doors, protective covers, ladders and steps, locking devices, warning alarm devices, direction indicators, tyre air pressures and lightning devices; and

(k) Any additional inspection items stipulated in the manufacturer's official operation, maintenance and repair manual.

(6) Operation of any unit of Contractor's Equipment shall not be allowed to commence until the HSO has certified that it is safe to do so.

(7) The Contractor shall prepare standard checklists for all inspections and the HSO shall ensure that these are complied with, completed and signed and kept as a record in accordance with JSSS 1.32 [*Health and Safety Records*].

4.2.2 Defects and Repair During Operation

(1) If an operator notices any defect or abnormality in the Contractor's Equipment during operation (such as abnormal noise, temperature, smell, etc.) the operator shall stop the operation immediately.

(2) Necessary repair shall be provided by qualified mechanics, electricians or engineers.

(3) The HSO shall ensure that no further operation shall resume unless the above has been complied with and the Contractor's Equipment has been re-inspected by him and certified in accordance with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety*

Equipment and PPE].

4.3 SAFETY REQUIREMENTS

4.3.1 General Safety Measures

In addition to other safety and health requirements of JSSS, the Contractor shall:

(1) Ensure that there is sufficient lighting to perform all work safely and provide artificial lighting where necessary.

(2) Ensure that Contractor's Equipment is equipped with suitable protective safety devices such as covers, screens, guards, contact prevention devices, auto-stop devices, enclosures, barriers and the like as necessary to prevent injury to personnel from equipment or parts of equipment, where:

(a) There may be any risk of persons being hit by, caught or injured or entangled in any ropes, cables, sheaves, moving or rotating parts; and

(b) There may be any risk of persons being hit by flying debris, offcuts, or the like produced by the equipment.

(3) Ensure that Contractor's Equipment is equipped with suitable ladders and steps for access to the operating cab and also to all other levels and components to permit inspection, assembly, maintenance and repair of the equipment. When any Contractor's Personnel need to work at a height of 2 m or more, the Contractor shall take suitable measures in accordance with JSSS 2.5 [*Fall Prevention*], including the provision and use by such Contractor's Personnel of guide ropes and PFAS.

(4) Prohibit personnel other than operators, workers and other authorised personnel from entering the place where Contractor's Equipment is in use for the Works.

(5) Ensure that each unit of Contractor's Equipment is provided with appropriate numbers and types of fire extinguishing equipment (where such equipment is necessary) and ensure that all operators and other Contractor's Personnel are trained in the use of such equipment and in fire safety procedures.

(6) Ensure that each working area where Contractor's Equipment is in use, is provided with appropriate numbers and types of first aid equipment and such other facilities that are necessary to ensure safety and treat accidents and ensure that all operators and other Contractor's Personnel are trained in the use of such equipment and first aid procedures.

(7) Post a label clearly showing the name of the operator on each unit of Contractor's Equipment together with the name and contact number of the HSO or a person in charge who shall be contacted in the event of breakdown or fault.

(8) Ensure that only the authorised operating, inspection and maintenance personnel access the mechanical, electrical and other components and systems of the Contractor's Equipment and prohibit all other persons from such access.

(9) Ensure that any inspection and maintenance covers, safety guards to prevent contact with moving parts and the like are not disabled, tampered with or removed except for repair, maintenance or any other justifiable reason.

(10) Ensure that installation, assembly, testing commissioning, operation and dismantling of all Contractor's Equipment is carried out under the direction of an Operation Leader, appropriately qualified, skilled and experienced in such activities for the particular type and capacity of equipment and in accordance with the manufacturer's operation, maintenance and repair manual.

4.3.2 Safety Measures During Cleaning, Inspection and Maintenance

The Contractor shall take the following measures for safety of Contractor's Personnel during cleaning, inspection and maintenance. Until such measures are taken, the Contractor shall

prohibit any cleaning, inspection or maintenance personnel or other workers from entering the areas:

(1) Put Contractor's Equipment, wherever possible on a level surface. Where such is not possible, ensure that wheels are securely chocked to prevent any movement of equipment.

(2) Provide safety blocks or supports under cargo bed of vehicles to prevent them descending unexpectedly.

(3) Lower attachments (buckets and blades etc.) to the ground during any inspection and maintenance. Where unavoidable ensure that attachments are securely supported to prevent any fall or downward movement.

(4) Stop and isolate the functions completely, establish and implement lockout and tagout procedures to prevent accidents during inspection and maintenance. The lockout and tagout system shall fully isolate the starting system.

(5) Post warning signs to prohibit start-up or use of any Contractor's Equipment.

(6) Assign a Spotter.

(7) Ensure that only authorised personnel have access to the cleaning, inspection and maintenance area.

4.3.3 Safety Measures During Operation

(1) Unless otherwise specifically permitted by the HSO, all work involving the use of Contractor's Equipment shall be designated as Dangerous Work and the Contractor shall enclose the working area with temporary fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry*].

(2) The Contractor shall also ensure that:

(a) All operators are able to clearly see and communicate effectively with Spotters and other relevant persons;

(b) No Contractor's Equipment is operating beyond the capacity or operational limits officially prescribed by the equipment manufacturer;

(c) The surfaces upon which the Contractor's Equipment is working, and any adjacent surfaces and areas over which access is required, are sound, safe and suitable to support the equipment and the Contractor shall provide any temporary foundations, hardstanding or other surfaces, sleepers or steel plates as are necessary to ensure safety and stability of the equipment at all times;

(d) Spotters are always be provided to enable precise movement and positioning of Contractor's Equipment, particularly when reversing, loading and unloading, in dangerous areas or when the operator's view is not clear and at intersections with public roads;

(e) Where there is any risk of turnover, slippage, collapse or fall, Contractor's Equipment is equipped with seatbelts or safety harnesses and that such seatbelts and harnesses are used;

(f) Where there is any risk of turnover, slippage, collapse or fall, Contractor's Equipment is equipped with a "Roll-Over Protective Structure" (ROPS);

(g) Where there is any risk of injury to operators due to Falling Objects Contractor's Equipment is equipped with a "Falling Object Protective Structure" (FOPS);

(h) Operators are aware that they shall pay careful and constant attention to the position of any workers near to the operating area and particularly when mobile equipment is reversing;

(i) Operators of excavating equipment are aware that excavator buckets shall never pass over the operator's seat of any other Contractor's Equipment;

(j) Workers shall not enter under a bucket which is loading material and shall keep away from dump trucks when loading or unloading materials; and

(k) No person shall ride on trucks, trailers or cargo bed other than cabin of vehicles unless permitted by the Laws of the Country.

4.3.4 Safety Measures When Mobile Equipment Is Not In Use

(1) When mobile equipment is not in use, the Contractor shall ensure that operators:

(a) Park on surfaces which are level, sound, safe and suitable to support the equipment;

(b) Securely chock all wheels to prevent any movement;

(c) Lower attachments (buckets and blades etc.) to the ground;

(d) Stop and isolate the functions completely, fully engage brakes and lock the brake pedal; and

(e) Lock the equipment and store the starter key in the designated place.

(2) The Contractor shall prohibit all persons other than authorised personnel from entering the area where Contractor's Equipment is parked.

4.3.5 Safety Measures During Connecting and Removing of Attachments

The Contractor shall take the following measures when connecting and removing attachments (buckets, blades etc.) to Contractor's Equipment:

(1) Prevent any accident due to movement or fall of attachments by taking safety measures for example, connecting and removing attachments after locating them on stable and sound frames or on the ground.

(2) Prevent accidental movement or operation causing persons to be trapped attachments by taking safety measures for example, parking of the Contractor's Equipment such that it cannot move (as mentioned in JSSS 4.3.4 (1) (a), (b) and (d)) and stop the engine.

4.3.6 Safety Measures During Loading and Transporting of Contractor's Equipment

The Contractor shall:

(1) Select and use trailers with associated ramps, other loading equipment and restraints which are suitable for the particular type, size and weight of the Contractor's Equipment and fit for the purpose for which they are intended.

(2) Select location and areas for loading and unloading which have sufficient space and surfaces which are level, sound, safe and suitable to support all of the equipment.

(3) Securely chock all wheels of trailers to prevent any movement.

(4) Stop and isolate the functions of trailers and load and fully engage brakes.

(5) Ensure trailers are equipped with tie down devices to allow secure fixing of load.

(6) Ensure that the weight and height of the loaded Contractor's Equipment do not exceed actually required or legal limits.

(7) Ensure that all lights, brakes, steering and safety devices are working properly.

(8) Ensure that suitable, clear and legally compliant signage is attached to the trailer visibly indicating the maximum safe loading capacity, height of load, width, speed limits and any other restrictions or required information.

(9) Ensure that trailers are loaded evenly.

(10) Ensure that Contractor's Equipment loaded onto trailers is braked, wedged, securely locked in position and tied to the trailer with adequately sized chains, slings and other fixings and tensioned to prevent any movement during transit.

(11) Place any attachments on trailers and securely tie down.

(12) Inspect the tie-down tensioning, before and at intervals during transportation of Contractor's Equipment to ensure that there is no slackening.

(13) Inspect chains, slings and other fixings for securing transported Contractor's Equipment and if any abnormality is found, replace immediately.

4.3.7 Safety Measures During Loading and Transporting of Goods

The Contractor shall:

(1) When transporting heavy or long Goods on public roads, select roads on which the transportation does not pose danger to other traffic, third parties, structures adjacent to the transportation route, obtain all necessary permission from the relevant authorities including police and road authority before commencement of transportation and comply with all requirements.

(2) When transporting heavy or long material Goods within the Site, select suitable routes where the transportation does not pose danger to existing permanent or temporary buildings or structures or other works and obtain the consent of the HSO before commencement of the transportation and comply with all requirements.

(3) Ensure that Goods are loaded evenly.

(4) Secure all loads with adequate and tensioned slings and cover with protective sheets, to avoid any fall or collapse of the conveyed articles and prevent any risk to workers and third parties.

(5) Inspect slings for securing transported materials and if any abnormality is found, replace immediately.

4.3.8 Temporary Roads in the Site

The Contractor shall:

(1) Take measures to ensure that that Temporary Roads in the Site are of suitable construction, of sufficient width, free from potholes, uneven settlement and collapse.

(2) Provide signs indicating height and weight restrictions, bends, speed limits, intersections, dangerous places and the like (e.g. road shoulders, cliff edges and the like).

(3) Separate roads for vehicles and walkways for workers and provide passing area for vehicles at places where the road is narrow.

(4) In large construction sites, provide exclusive transport roads which are one-way if possible and provide passing areas on narrow roads.

(5) Provide sufficient lighting facilities at necessary places along roads when work operating in night.

4.3.9 Additional Requirements for Static Equipment

(1) The Contractor shall design and construct suitable foundations and support structures for static equipment with paved surfaces, screens, fencing and associated facilities for storage of material and product and for offices, access and the like all of which shall be suitable and fit for the purpose for which they are intended. Unless otherwise stated in the Contract, all such foundations, support structures, paved surfaces, fencing, screens and associated facilities shall be demolished and removed and disposed of safely and in an environmentally acceptable manner by the Contractor on or before completion and taking-over of the Works. All areas shall be backfilled, restored to a safe and suitable

コメントの追加 [SS105]: 15. (48)

コメントの追加 [SS106]: No. 48
JICA inquired if "on or before" means that they can be demolished without waiting till completion and taking over all the Works.
If yes, the sentence of "on or before" will be left as they are.
Please reply to this inquiry.

コメントの追加 [MJD107R106]: Yes, it can be at any time before taking-over if possible, i.e. as soon as use is finished.

Please advise

コメントの追加 [SS108R106]: No change is made.

condition, cleaned and landscaped.

(2) Unless otherwise stated in the Contract, all remaining aggregate, rock, cement, bitumen and the like used by or processed with the static equipment shall be removed and disposed of safely and in an environmentally acceptable manner by the Contractor on completion of use of the static equipment. All areas shall be backfilled, restored to a safe and suitable condition, cleaned and landscaped.

4.3.10 Additional Requirements for Personnel and Goods Elevators and Material Conveyors

(1) General

(a) The requirements for conveyors stipulated in this Clause apply to material conveyors;

(b) The Contractor shall undertake the daily and periodical inspection in addition to the items stipulated in JSSS 4.2 [*Inspection, Maintenance And Repair*], (or at intervals required by the manufacturer's official operation, maintenance and repair manual), carry out any necessary maintenance and repair and when necessary obtain re-certification of the HSO before any further operation of the Contractor's Equipment is permitted; and

(c) The Contractor shall post the maximum load capacity and any restrictions on the use.

(2) Personnel and Goods Elevators

(a) Additional daily inspection items shall include checking for defects or operational faults with the following:

(i) Elevator enclosures, doors, guide-rails and runners;

(ii) Emergency stop and alarm systems;

(iii) Power, lighting and control systems;

(iv) Interphone systems;

(v) Brakes, clutches; and

(vi) Sheaves and pulleys.

(b) Additional periodical inspection items shall include checking for defects or operational faults with the following:

(i) Daily inspection items;

(ii) Wire ropes;

(iii) Winch and its foundation; and

(iv) Supporting structures, guy ropes, fixings and anchors.

(3) Material Conveyors

(a) Additional safety measures:

(i) Conveyor systems shall be equipped with an audible warning signal to be sounded immediately before starting up the conveyor;

(ii) Means for stopping the motor or engine shall be provided at the motor or engine location;

(iii) Emergency stop switches shall be provided and be arranged so that the conveyor cannot be started again until the actuating stop switch has been reset to running or "on" position;

(iv) Where a conveyor passes over working areas, roads and walkways, suitable

guards shall be provided to prevent fall of the materials being conveyed; and

(v) Riding of workers on the moving belts shall be prohibited.

(b) Additional daily inspection items shall include checking for defects or operational faults with the following:

(i) Overrun and reverse run prevention devices;

(ii) Emergency stop switches; and

(iii) Guards.

(c) Additional periodical inspection items, shall include for checking for defects or operational faults with daily inspection items.

4.3.11 Additional Requirements for Small Equipment and Tools

(1) Accessories and attachments shall be the standard types obtained from or recommended by the manufacturer of the equipment to which they are connected.

(2) Any repairs shall be carried out by competent persons approved by the HSO.

(3) All small equipment and tools shall be tested by the HSO as safe for use after any repair or replacement of parts, before such equipment is put back into use.

4.3.12 Additional Requirements for Electric Powered Equipment

(1) Electric powered equipment specified in this Clause shall include portable electric powered mobile equipment or tools and shall form a part of the small equipment and tools listed in JSSS 4.1.1 (7).

(2) The Contractor shall undertake the following additional daily inspection items, (or at intervals required by the manufacturer's official operation, maintenance and repair manual), carry out any necessary maintenance and repair and when necessary obtain re-certification of the HSO before any further operation of the Contractor's Equipment is permitted:

(a) Defects or operational faults with grounding such as disconnection of grounding wire and insecure fixing of grounding electrodes;

(b) Damage to insulation and protective coverings of all wires and cables including flexible cables; and

(c) Damage to plugs, sockets, transformers and all wiring fittings and appliances.

(3) The Contractor shall comply with the following additional safety requirements:

(a) Use waterproof switches and socket outlets with covers, securely fixed and located in accessible and dry places;

(b) Label and paint electrical power and switch boxes with warning signs and coloured hazard markings;

(c) Use rubber cabtyre cables for all electrical power equipment;

(d) Provide grounding to all electrical power supply systems with GFCI or RCD in accordance with JSSS 6.7.3 [*General Safety Requirements*];

(e) Avoid hanging electric cables and wires directly on nails, reinforcement or Scaffolding and the like to prevent damage to the insulation and protective covering;

(f) Turn off the power before repairing, moving or maintaining electric power equipment;

(g) Replace fuses with correct type and rating, prohibit replacing fuses with a higher

rating or with iron or copper wire;

(h) Ensure that fuses are replaced by an authorised person;

(i) Prevent any use of electric power equipment from use in the rain, or when the user is wet, standing in water or is not wearing rubber soled insulated footwear or when the electric power equipment is wet;

(j) When any operational fault is identified immediately turn off the power, unplug and stop using the equipment and advise (or hand to) the HSO;

(k) Ensure that workers using electric power equipment wear appropriate PPE suitable for the electric power equipment in use such as working clothes, protective helmets, safety shoes, eye and face protection, ear protection; and

(l) When electric shock accident occurs, unplug and stop using the equipment and advise (or hand to) the HSO and take measures in accordance with JSSS 1.25 [*Measures at the Time Accidents Occur*].

4.3.13 Additional Safety Measures during Adverse Weather

Further to the requirements of JSSS 2.7 [*Adverse Weather Requirements*], the Contractor shall ensure that Contractor's Equipment is parked in a stable and secure state by taking all necessary measures including:

(1) Dropping the jib, boom, arm and attachments to ground level and securing where necessary with adequate anchors and chains.

(2) If heavy rain and flooding can be anticipated, moving Contractor's Equipment to higher ground or to places where the risk of instability is limited.

(3) Removing snow or ice.

4.4 ROPES, SLINGS AND CHAINS

4.4.1 Requirements Generally

(1) The Contractor shall ensure that untested, uncertified, broken, damaged, deformed or defective ropes, chains or slings shall not be used.

(2) The safety factor for wire ropes, slings and chains shall be as recommended by the manufacturer of each type.

(3) Requirements for ropes, slings and chains shall be as specified in JSSS 5.4 [*Rigging Equipment*].

4.5 ALTERNATIVE USE OF CONTRACTOR'S EQUIPMENT

4.5.1 Requirements Generally

The Contractor shall not use Contractor's Equipment for any other purpose than the purpose for which it is designed and other than the purpose recommended by the manufacturer.

Use of Contractor's Equipment for any other purpose than the originally intended purpose are allowed only if it is not prohibited by either of the Laws the Country and the manufacturer's official operation, maintenance and repair manual and subject to HSO's approval after reviewing all the safety aspects.

In particular, when equipment for excavation is to be used for lifting, the HSO shall, in addition to other requirements provided in JSSS, confirm:

(1) Rigging Equipment (such as hook) is attached on an appropriate part of the excavation equipment (e.g. arm or bucket).

(2) Arms, bucket, Rigging Equipment have enough strength to lift the load.

(3) The lifting devices such as hook and shackles are firmly attached to arm or bucket of the

equipment.

(4) The lifting capacity for alternative use is confirmed by loading tests at the Site.

(5) Ensure that operators have accurately determined the total weight of the load, taking account of the weight of any attachments, the reach and angle and configuration of the equipment and have informed the HSO of this and obtained his permission before commencing the operation.

4.6 HIRED/LEASED CONTRACTOR'S EQUIPMENT

4.6.1 Requirements Generally

(1) Contractor's Equipment from hire or lease companies shall comply with all of the requirements of JSSS as if it were the Contractor's own property, in particular the Contractor shall ensure compliance with the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

(2) The Contractor shall ensure that the hire/lease companies have performed all necessary inspection, maintenance and repair works before the Contractor's Equipment is mobilised to the Site and that the following is provided with the equipment to the Contractor upon mobilisation and is available for the inspection of the Engineer:

(a) Inspection and maintenance records;

(b) Operation, repair and maintenance manuals; and

(c) Spare and replacement parts, tools, maintenance equipment, lubricants, filters, hydraulic fluids and the like.

(3) The Contractor shall double-check to ensure that the inspection and maintenance has been carried out and if the Contractor has any doubt over the adequacy of such inspection or maintenance or if complete records are not made available, the Contractor shall not allow this Contractor's Equipment to be used upon the Works. The Contractor shall inspect and carry out full maintenance and repair on such equipment in compliance with the requirements of this Chapter before it is certified for use by the HSO and used upon the Works.

(4) Operators from hire/lease companies are by definition Contractor's Personnel and they shall be treated as if they are employed by the Contractor, in terms of compliance with JSSS.

(5) Operators shall be tested and certified by the HSO, shall receive safety training and shall perform all inspection, maintenance and other requirements fully in compliance with JSSS, in the same way as the Contractor's own employees.

4.7 TEMPORARY FUELLING FACILITIES

4.7.1 Requirements Generally

(1) When the Contractor uses temporary fuel storage and dispensing facilities at the Site for the use of Contractor's Equipment, the Contractor shall design and construct them so that they are substantial and secure and capable of storing and dispensing fuel in a safe and environmentally acceptable manner all to the approval of the Engineer.

(2) The facility shall include storage tanks, suitable foundations, support or containment structures, protective bund walls as necessary, paved surfaces, screens, fencing and associated facilities for storage of separate fuels and lubricants and for offices, access and the like all of which shall be suitable and fit for the purpose for which they are intended.

(3) Unless otherwise specified in the Contract, all such tanks, foundations, support and containment structures, paved surfaces, fencing, screens and associated facilities shall be demolished, removed and disposed of in a safe and environmentally acceptable manner

by the Contractor on or before completion and taking-over of the Works. All areas shall be backfilled, restored to a safe and suitable condition, cleaned and landscaped.

(4) The Contractor must ensure that the temporary fuel storage and dispensing facility is operated and occupied at all time only by authorised personnel and that all unauthorised personnel are prohibited from entering such areas at all times. The Contractor shall be particularly careful and provide measures to prevent any unauthorised access, tampering, damage and theft at any time.

(5) All storage tanks shall be bunded either as jacketed tanks or by providing bunded enclosures, such that in the event of a catastrophic failure, the tank contents will be safely contained and shall not be allowed to run freely or enter the surface or ground water systems.

(6) The Contractor is reminded of the requirements of JSSS 2.8 [*Fire Prevention*] and will be required to provide a comprehensive and a high standard of fire protection in fuel storage areas.

コメントの追加 **[SS109]:** 16. (50)

コメントの追加 **[SS110]:** No. 50
JICA inquired as same as No. 48.
Please reply to this inquiry.

コメントの追加 **[MJD111R110]:** Thank you and yes, it should be the same as the previous item, "on or before"

コメントの追加 **[SS112R110]:** Please replace with "on or before".

CHAPTER 5: HOISTING AND RIGGING

5.1 GENERAL REQUIREMENTS

5.1.1 Scope

(1) This Chapter specifies the safety requirements for Hoisting and Rigging Works which shall include:

(a) Hoisting Operations;

(b) Hoisting Equipment; and

(c) Rigging Equipment.

And hereinafter collectively referred to as "Hoisting and Rigging".

(2) General requirements for Contractor's Equipment for Hoisting and Rigging (including cranes) are included in JSSS 4 [*Contractor's Equipment*].

Additional particular requirements are contained in this Chapter.

5.1.2 Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Chapter or relevant to the subject of this Chapter and which are not fully covered by JSSS, the Contractor shall comply with the following standards:

(1) OSHA 1926.251 [Rigging equipment for material handling];

(2) OSHA Subpart R [Steel Erection];

(Note: Whilst this standard is related to Steel Erection, JSSS requires that this standard be applied to Hoisting Operations and associated rigging requirements in construction works generally)

(3) OSHA 1926.1413 [Wire rope – inspection]; and

(4) OSHA 1926.1414 [Wire rope - selection and installation criteria].

5.2 HOISTING OPERATIONS

5.2.1 Instruction for Contractor's Personnel

Further to the requirements of JSSS 1.7 [*Contractor's Safety Plans*], JSSS 1.9 [*Contractor's Method Statements*] and JSSS 1.15 [*Contractor's Safety Management Activities*], the Contractor shall include details of the following in the Method Statement and Safety Plan for Hoisting Operations and shall fully inform all Contractor's Personnel associated with such Hoisting Operations of these requirements before the commencement of any such operations, including:

(1) Scope, Area and Risk of the Hoisting Operation

(a) The scope of the required Hoisting Operation, the Rated Capacity, nature of Goods to be hoisted, location, required methods and safety arrangements;

(b) The Hoisting Operation boundary;

(c) Requirements on the ground conditions for installation, appropriate installation method taking account of all Hoisting Operation requirements, site and working conditions, location of obstacles, etc.;

(d) The working environment of the nearby areas to which particular attention should be paid (e.g. storage of Dangerous Goods or Hazardous Substances, Hazardous Areas, Operational Areas, or Overhead Services);

(e) The preservation of safe access for Contractor's Equipment and persons to, within and around the Hoisting Operations working area; and

(f) The potential danger of Hoisting Operations to any persons that are on the Site, and who may be affected by such operations.

(2) Hoisting Operation and Rigging Requirements

(a) The type(s) of Hoisting Equipment to be used and the Rated Capacity;

(b) The type(s) of Rigging Equipment to be used and the Rated Capacity;

(c) Hazards associated with the Hoisting Operation;

(d) Role and responsibility of the operator and each Rigger;

(e) Weight of Goods being hoisted;

(f) The shapes and characteristics of Goods being hoisted;

(g) The presence of any obstructions or Overhead Services and consequent restrictions on the movement and operation of Hoisting Equipment;

(h) Connecting and disconnecting techniques;

(i) The communication and signalling requirements (equipment to be used and standard signals); and

(j) The procedures in case of emergency.

(3) Identification of Personnel

(a) The identity of operators, Riggers and any other workers associated with the Hoisting Operation;

(b) The name of the authorised operator for each unit of Hoisting Equipment; and

(c) The identity of and location(s) for Spotters.

5.2.2 Operators and Riggers Generally

(1) The Contractor shall place signs on each unit of Hoisting Equipment showing the name of each authorised operator and clearly prohibiting all unauthorised persons from using, handling, operating or sitting at the controls of that equipment unit.

(2) Further to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*], the Contractor shall ensure that operators and Riggers are appropriately qualified, skilled and experienced in operation of the Hoisting Equipment to which they are assigned and duly certified as such by the HSO.

(3) Operators and Riggers shall be fully aware of the following:

(a) Work procedures, possible risks and operation methods;

(b) The need to stop all work when any defect or abnormality is detected;

(c) Not to remove, interfere with or override any safety devices;

(d) The identity of and location(s) for Spotters and the communication and signalling requirements including equipment to be used and signals; and

(e) The procedures in case of emergency.

(4) In addition, operators shall:

(a) Safely and competently operate the Hoisting Equipment;

(b) Keep all safety devices including emergency alarm and stop devices activated;

(c) Keep their assigned unit clean and carry out regular inspections prescribed by the Contractor before start of operation;

(d) Inform the Contractor's maintenance personnel of any apparent defect or

maintenance requirements; and

(e) Not use such Hoisting Equipment until any required repair or maintenance is performed.

(5) The Contractor shall assign only Riggers for Hoisting Operations and shall prohibit other workers from any involvement.

(6) The names of all assigned Riggers shall be posted prominently in the working area of the Hoisting Operation.

5.2.3 Safety Training

The Contractor shall provide health and safety training in accordance with JSSS 1.19 [*Safety Training Generally*]. taking account of the characteristics of the Hoisting Operations, Hoisting Equipment and Rigging Equipment.

5.2.4 Inspection ~~of Hoisting Equipment and Rigging Equipment~~

コメントの追加 **[MJD113]:** To simplify and make headings consistent

(1) When the Hoisting Equipment is mobilised to the Site, the Contractor shall inspect the equipment complying with JSSS 4.2 [*Inspection, Maintenance and Repair*], to ensure that the equipment is free from defect and suitable for the planned Hoisting Operation.

(2) Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] and JSSS 4.2 [*Inspection, Maintenance and Repair*], the HSO shall ensure that all Hoisting Equipment and all Rigging Equipment is inspected and maintained when it is at the location of operation before the commencement of the first and of all subsequent Hoisting Operations.

Inspections shall include all items necessary to ensure the safe performance of the Hoisting Operations including the following examples and any further requirements due to the characteristics of the Hoisting Operation and the capability and condition of the Hoisting Equipment and Rigging Equipment including condition and performance of:

(a) Anti-two blocking devices (over-winding prevention devices) and over-load prevention devices;

(b) Other safety devices including brakes, clutches and controllers;

(c) Rails for trolley and runway;

(d) Hooks, sheaves, blocks, pulleys and the like;

(e) Cables, ropes and the like; and

(f) Rigging Equipment.

(3) Periodic inspection shall be made complying with JSSS 4.2 [*Inspection, Maintenance and Repair*] and include the following items:

(a) Condition of over-winding prevention devices, anti-two blocking devices (over-winding prevention devices), other safety devices, brakes, and clutches;

(b) Condition of wire ropes and hanging chains;

(c) Condition of the Hoisting Equipment;

(d) Condition of placement of winches; and

(e) Condition of electric wire, switchboard and controller.

(4) No Hoisting Equipment or Rigging Equipment shall be put into operation unless it has been inspected in accordance with the requirements of JSSS 4.2 [*Inspection, Maintenance and Repair*] and it is certified as safe to be used.

(5) The Contractor shall prepare standard checklists for the above regular and periodic inspections. The results of these inspections shall be recorded and kept in accordance

with JSSS 1.32 [*Health and Safety Records*].

5.2.5 General Safety Measures ~~for Hoisting Operations~~

コメントの追加 **[MJD114]:** To simplify and make headings consistent

The Contractor shall:

(1) Select Hoisting Equipment which has a Rated Capacity and function compatible with the work conditions and requirements, including loads, surface conditions, access, working area, radius and angle of boom, etc.

(2) Clearly display the Rated Capacity of the Hoisting Equipment so that all operators and Riggers are fully aware at all times.

(3) Select Rigging Equipment with a Rated Capacity suitable for the Hoisting Operation.

(4) Select Rigging Equipment compatible with the purpose, work conditions and requirements.

(5) Ensure that operators and Riggers confirm that the load on the Rigging Equipment is less than the Rated Capacity.

(6) Activate all safety devices of Hoisting Equipment throughout the entire operation time(s) of any Hoisting Operations.

(7) Prohibition of entry

- (a) Designate all Hoisting Operations as “Dangerous Work”, enclose the entire working area which is subject to any risk by providing temporary fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry*]; and
- (b) The Contractor shall take measures to keep any unauthorised personnel away from any area where there is any risk of injury arising from the Hoisting Operation, due to fall of hoisted Goods, tangling, snagging, rebound of broken ropes or cables, broken sheaves, droppage and the like.

(8) Signalling

- (a) Signalling between operators, Riggers and any associated workers regarding the Hoisting and Rigging Operations, shall only be carried out by Riggers, (hereinafter referred to as signallers);
- (b) Signallers shall be located in a safe place outside the immediate area where the Rigging and Hoisting Operations are taking place, but in a location where they can clearly see suspended loads and can also see the operator and also be seen by such personnel;
- (c) When it is not possible for signallers to give direct visible signals to the operator, hand-held radios or other communication tool as approved by HSO must be provided and used; and
- (d) In addition, Spotters shall be placed and used only to keep any unauthorised personnel away from the working area.

(9) During Hoisting Operations:

- (a) Check if the hoisting points, hooks and the like are positioned above the centre of gravity of the load to be hoisted;
- (b) At commencement of all Hoisting Operations, stop the hoist at 30 cm from hoisting level, to check stability and ensure that all is in order before proceeding;
- (c) Ensure that there are no persons and objects within the turning area when the Hoisting Equipment turns;
- (d) After hoisting loads up to the safe height, adjust the boom gently;

(e) Always pay attention to any movement of the boom and the condition of suspended loads; and

(f) When unloading or detaching loads, stop once before landing and check the condition of the landing place and the load and then continue to lower gently.

(10) Ensure that operators shall never leave their seat or leave the controls while Hoisting Operations are in progress.

(11) Defects with Hoisting Equipment during operation

(a) Ensure that if operators notice any defect or abnormality in the Hoisting Equipment during Hoisting Operations (such as abnormal noise, temperature, smell, etc.) the operator shall stop the Hoisting Operation immediately;

(b) Identify the cause of the defect or abnormality and make necessary repairs by using authorised and qualified specialist mechanics, electricians or representative technical engineers authorised by the Hoisting Equipment manufacturer; and

(c) Ensure that the repaired Hoisting Equipment shall not be put in operation unless certified by the HSO.

(12) Condition of Ropes, Slings and Chains

Ensure that untested, uncertified, broken, damaged, deformed or defective ropes, chains or slings shall not be used.

(13) Adverse Weather

Take the following measures in addition to JSSS 2.7 [*Adverse Weather Requirements*]:

(a) Hoisting Equipment is left in a safe condition when not in use and particularly if adverse climatic conditions can be anticipated;

(b) All anchors, outriggers and supports are secure and adequate to fix and support the Hoisting Equipment in position during any adverse climatic conditions;

(c) Booms and jibs shall be secured to prevent any instability or collapse; and

(d) Before resuming any Hoisting Operation after any adverse weather, inspect Hoisting Equipment using the daily and periodic checklists specified in JSSS 5.2.4 [*Inspection ~~of Hoisting Equipment and Rigging~~ ~~Equipment~~*].

(14) Use of Hoisting Equipment for Contractor's Personnel

As a general rule, Hoisting Equipment shall not be used for transporting or hoisting Contractor's Personnel.

In exceptional circumstances and if so approved by the HSO, use of Hoisting Equipment may be allowed when the following all measures are taken:

(a) Dedicated gondola for transporting or hoisting shall be provided;

(b) Prevention measures shall be taken to avoid turning and falling of gondola;

(c) The assumed load (i.e. 1.3 times of total weight of gondola and workers on board plus 500kgf (approx. 4.9kN) shall not exceed the Rated Capacity of the Hoisting Equipment;

(d) Wires and ropes of Hoisting Equipment shall have a safety factor of at least 10 against the assumed load;

(e) Wire ropes of Hoisting Equipment shall have a safety factor of at least 10 against the assumed load;

(f) Lowering the gondola shall be by powered system which prevents any free drop; and

コメントの追加 **[MJD115]:** Clause heading changed

コメントの追加 **[SS116]:** 17. (55)

コメントの追加 **[SS117]:**

No. 55
JICA requested two units as shown to make clear understanding.
NK agreed.

コメントの追加 **[MJD118R117]:** No comment will change

コメントの追加 **[SS119R117]:** Confirmed.

(g) Use of PFAS of any Contractor's Personnel in the gondola shall be ensured.

5.3 HOISTING EQUIPMENT - CRANES

5.3.1 Planning, Installation and Removal

Unless otherwise approved by the HSO, the Contractor shall employ an appropriately qualified, skilled and experienced crane specialist(s) that shall select the required type and capacity of crane, plan the Hoisting Operation including mobilising, assembly, erection, use, dismantling and removal of cranes. The Contractor's specialist shall:

(1) Investigate the location and position for installation, plan the appropriate installation method taking account of all Hoisting Operation requirements, site and working conditions, location of obstacles, etc.

(2) Investigate the working area and ensure the safety of the crane and any crane rails.

(3) Design and construct crane foundation, assemble and install the crane with proper structural design and in compliance with the manufacturer's written instructions.

(4) Conduct completion inspection, load test and stability test of the crane.

(5) Dismantle and remove and transport cranes in a planned and systematic manner in compliance with the manufacturer's written instructions.

5.3.2 Additional Requirements for Mobile cranes

(1) Position mobile cranes where there are no obstacles within the operation range.

(2) Where obstacles exist, plan the appropriate operation to avoid the obstacles and ensure that operators and signallers comply with this plan.

(3) Ensue that ground has sufficient and even bearing capacity to prevent the crane from subsiding and overturning. Where necessary or where there is any risk of damaging surface paving or underground services, provide temporary steel plates of suitable size, thickness and to support the crane and avoid any risk of overturning during operation.

(4) Provide steel plate load-spreader pads to support outriggers and prevent them from subsiding.

(5) Fully extend outriggers or extension type crawlers to the maximum position.

(6) When the outriggers or crawlers cannot be extended to the maximum position, adjust the Rated Capacity of the mobile cranes to suit lower capacity commensurate to the actual extension length of outriggers or crawlers.

(7) Ensure that the actual Rated Capacity of the mobile crane is clearly shown and also advised to operators and Riggers.

(8) Activate the over-load prevention device of mobile cranes and accurately input the operational conditions of booms and outriggers.

(9) Cease the Hoisting Operation from time to time and check upon the condition of the outriggers or crawlers, implement adequate remedial measures if there is any subsidence and prohibit continuation of the Hoisting Operation until the crane has been re-inspected and certified as safe by the HSO.

(10) After the Hoisting Operation:

(a) When the mobile crane is not driven, fix the hooks of crane at the safe position;

(b) When the mobile crane is driven, take the following measures before driving:

(i) Attach fixing pin on each part;

(ii) Apply the brake of the turning device and winch drum; and

(iii) Turn off all switches related with operation of cranes.

5.4 RIGGING EQUIPMENT

5.4.1 Hoisting and Rigging Equipment

(1) All items of Rigging Equipment shall be labelled to show all pertinent information, such as the name of the manufacturer, date of manufacture, Rated Capacity, date of the latest periodic inspection~~,~~ and its expiration date, etc.

(2) The Contractor shall obtain Rigging Equipment from reputable manufacturers approved by the HSO and shall not make or repair his own Rigging Equipment at the Site.

(3) Rigging Equipment shall only be used:

(a) When certified as safe for use by the HSO in accordance with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*];

(b) Within the Rated Capacity; and

(c) In compliance with the manufacturer's written instructions.

(4) Rigging Equipment shall be removed from service, tagged as such and destroyed or removed from the Site, where required by the standards noted in JSSS 5.1.2 [*Compliance Standards*] including (but not limited to) the following conditions:

(a) Wire ropes

(i) Where one-tenth or more of the element wires are broken or cut in any one (1) strand;

(ii) Where the reduction ratio of diameter due to use, exceeds 7% of the original nominal diameter at the date of manufacture;

(iii) With kink or deformation; and

(iv) With excessive wear, corrosion or defect.

(b) Chains

(i) Where elongation due to use exceeds 5% of the original nominal length at the date of manufacture;

(ii) Where the diameter of links has reduced by more than 10 % since the date of manufacture; and

(iii) With excessive wear, cracks, corrosion or defect.

(c) Hooks, shackles

(i) Signs of deformation; and

(ii) With excessive wear, cracks, corrosion or defect.

(d) Synthetic fibre ropes or slings

(i) Broken or cut strands; and

(ii) With excessive wear or defect.

5.4.2 Further Safety Requirements ~~for Rigging~~

コメントの追加 **[MJD120]:** To simplify and make headings consistent

The Contractor shall fully comply with the requirements of the standards noted in JSSS 5.1.2 [*Compliance Standards*] including taking the following measures to prevent the risk of injury:

(1) Attach colour-coded self-adhesive vinyl tape and labels for slings visibly indicating the month of inspection and whether suitable for use.

(2) Inspect all Rigging Equipment before start of work.

(3) Select and use suitable Rigging Equipment depending on the weight and shape of Goods.

(4) Apply appropriate set up, provide fittings and accessories including clips and friction pads during Hoisting Works to ensure that the hoisted load (including bundled loads) are secure and will not move or slip, for example, cable-laid slings referred to BS EN 13414-3 Steel wire rope slings – Safety, Part 3: Grommets and cable-laid slings.

(5) Hoist loads at or above the centre of gravity.

(6) Attach guide ropes to the hoisted loads to assist with positioning.

(7) Securely store and protect Rigging Equipment to maintain in good condition and to prevent damage from rain, dust or contamination.

CHAPTER 6: TEMPORARY WORKS

6.1 GENERAL REQUIREMENTS OF TEMPORARY WORKS

This Section 6.1 applies to all Temporary Works included in JSSS 6.

6.1.1 Design and Provision of Temporary Works ~~Generally~~

Unless otherwise specified in the Particular Safety Specification, the Contractor shall take all necessary measures for the study, design, management, provision, safe use and safe removal of all Temporary Works as necessary to safely and systematically execute the Permanent Works and in accordance with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*], JSSS 1.37 [*Design and Management of Temporary Works*] and the specified standards.

The Contractor shall comply with the requirements specified in the Contract for Temporary Works and:

(1) Provide Temporary Works which are fit for the purpose for which they are intended and fully in accordance with the JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

(2) Manage the design, use and removal of Temporary Works fully in accordance with JSSS 1.37 [*Design and Management of Temporary Works*].

(3) Maintain and repair all Temporary Works when in use to ensure the continued optimal and safe performance.

(4) Monitor all Temporary Works when in use and any affected Permanent Works, existing buildings, structures, ground or surfaces that may be affected by the Temporary Works through regular inspection and (where necessary and specified) with relevant instrumentation to ensure that the Temporary Works are performing safely, to the designed limits and intended purpose.

(5) Ensure that:

(a) Modification of Temporary Works is not allowed unless it is authorised by the HSO;

(b) Unauthorised use of Temporary Works by any persons is not allowed;

(c) The HSO shall inspect all Temporary Works upon completion of erection and certify and label them as safe for use before any use is allowed;

(d) The HSO shall regularly inspect Temporary Works and certify and label them appropriately to ensure the continuous safe use or, in the event that faults are discovered, certify them as "Not Safe for Use" and prevent access to the Temporary Works until repaired and re-inspected;

(e) The HSO shall inspect Temporary Works upon the completion of the required Permanent Works and before Temporary Works are dismantled, demolished and removed accompanied by the Contractor's Temporary Works staff specified in JSSS 1.37 [*Design and Management of Temporary Works*] as appropriate, and certify that the Permanent Works are completed and the Temporary Works can be safely removed; and

(f) The HSO shall inspect after removal of the Temporary Works to ensure that removal has been completed properly and that no part of the Temporary Works remains, that any rectification of the Permanent Works is completed and all is left in safe order and condition.

(6) Safety Plan for Temporary Works

The Contractor shall include details of all Temporary Works in the Safety Plan to be

コメントの追加 **[SS121]:** Heading is changed simply to be consistent with the abbreviated titles used in some other Chapters
We recommend that this process be extended to introduce further consistency and remove other unnecessary wording.

コメントの追加 **[MJD122R121]:** No problem will change when you advise to do so

コメントの追加 **[SS123R121]:** Yes, JICA confirmed to change them.

JICA requested to review and make same in Chapters 1 to 5, for example.
5.2.4 Inspection ~~of Hoisting Equipment and Rigging Equipment~~
5.2.5 General Safety Measures ~~for Hoisting Operations~~
5.4.2 Further Safety Requirements ~~for Rigging~~

コメントの追加 **[MJD124R121]:** Have changed throughout – refer to the updated content pages for all changes

submitted in accordance with JSSS 1.7 [*Contractor's Safety Plans*].

6.1.2 Method Statements

Refer to JSSS 1.9 [*Contractor's Method Statements*].

6.1.3 Monitoring ~~the Performance of Temporary Works~~

(1) The Contractor shall monitor the Temporary Works to demonstrate that they are performing safely, to the designed limits and for the intended purpose.

(2) For more details, refer to JSSS 2.1.7 [*Monitoring and Records*].

(3) Contract Compliance

Notwithstanding the requirements of JSSS 2.1.7 [*Monitoring and Records*], the Contractor is reminded of his overall responsibility under the Contract for the Temporary Works.

The Contractor shall satisfy himself that the monitoring criteria and requirements specified in JSSS 2.1.7 [*Monitoring and Records*], or in other respective Chapters of JSSS and/or in the Particular Safety Specification, are sufficient to comply with his obligations under the Contract and he shall take any additional measures necessary to ensure the adequacy, stability and safety of Temporary Works.

6.1.4 Compliance Standards

(1) By reference to JSSS 1.37 [*Design and Management of Temporary Works*] and unless otherwise specified in the Particular Safety Specification, the Contractor shall comply with Sections 1 and 2 of BS5975, Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework as management standard with respect to design, erection, use and dismantling of Temporary Works.

(2) In relation to Temporary Works, the Contractor shall, subject to JSSS 1.4.5 [*Specified Standards*] also comply with:

(a) Section 3: Falsework of BS5975, Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework; and

(b) Such standards that are referred to in particular parts of JSSS.

コメントの追加 **[MJD125]:** To simplify and make headings consistent

6.2 EARTHWORK SUPPORT

6.2.1 General

(1) Refer to JSSS Annex 1.1: [*Definitions and Abbreviations*] for the definition of Earthwork Support.

(2) The Contractor shall maintain the structural integrity of the Works and Other Properties that could be affected by the Excavation Works and shall provide and maintain whatever Earthwork Support is necessary to comply with this requirement and ensure the safety of all persons that are in, under or adjacent to any excavation and to avoid any damage.

(3) Earthwork Support shall include for example:

(a) Timberwork including sheeting, planking, strutting and support systems;

(b) Steel sheet piling including shoring, strutting and support systems;

(c) Specialised support systems such as diaphragm walling, steel pipe piling, contiguous piling, soldier piling and lagging, and the like;

(d) Ground improvement, slope stabilisation, injection, ground freezing and the like; and

(e) Ground Anchors.

(4) In the case of (a) and/or (b) following, the Earthwork Support may not be required if, in the opinion of the HSO, conditions of the excavation are sufficiently safe, stable and free from danger of movement or collapse, and if the HSO gives permission that no-Earthwork Support is required:

(a) Excavation in rock; and/or

(b) Excavation less than 1.5 m deep.

(5) For sloping or benched sides to excavations (in lieu of Earthwork Support), refer to JSSS 7.2.1 (3).

6.2.2 Planning and Design

The Contractor shall design all Earthwork Support so that it is fit for the purpose for which it is intended and take account of ground conditions and surrounding conditions including:

(1) The effects of ground water including liquefaction, boiling or piping, heave, displacement and the like.

(2) The effect of vibration from site operations including piling or ground improvement.

(3) The effect of adjacent road or rail traffic.

(4) The requirements for safe access and working space necessary to execute the Works.

6.2.3 Monitoring

Refer to JSSS 2.1.7 [*Monitoring and Records*] for general requirement of monitoring and records.

The Contractor shall prepare a Monitoring Plan covering visual and instrument monitoring based on Table 6.2.1 [*Example of Visual and Auditory Monitoring Items*] and Table 6.2.2 [*Example of Instrument Monitoring Items*]

The contents of the tables are reference only and the Contractor shall prepare a detailed Monitoring Plan and submit to the Engineer as a part of the Safety Plan or the Method Statement.

Table 6.2.1: Example of Visual and Auditory Monitoring Items

	Locations	Monitoring Items
1	Earthwork Support: Faces, sheeting and piling	Meander/horizontal displacement and vertical displacement along top. Crack, deflection and swelling. Water leakage, mud inflow. Opening of joints or gaps in Earthwork Support.
2	Earthwork Support: Piles, walings and struts	Deflection, deformation and abnormal sound of struts and walings and other members. Settlement, floatation and twist of piles. Vertical or horizontal displacement of walings, struts and other members. Opening of joints or breakage of cross members, or breakage and loosening of bolts.
3	Base of Excavation	Water spring and ground water flow. Sand boiling. Heaving of the base. Liquefaction.
4	Neighbouring or adjacent Ground, paving and roads	Cracks, collapse, subsidence of pavement or ground surfaces. Opening of joints in paving and kerbs.
5	Neighbouring or adjacent Buildings or Structures	Cracks, subsidence, deformation and tilting of structures.
6	Underground Utilities	Displacement or leakage of or damage to underground utilities.

Table 6.2.2: Example of Instrument Monitoring Items

	Locations	Monitoring Items
1	Earthwork Support: Faces, sheeting and piling	Displacement, stress of Earthwork Support. Earth pressure and water pressure acting on Earthwork Support.
2	Earthwork Support: Piles, walings and struts	Axial force of struts, other supports and ground anchors.
3	Base of Excavation	Displacement of base of excavation. Water pressure of ground water, rate of water inflow.

4	Neighbouring or adjacent ground, paving and roads	Displacement of neighbouring or adjacent ground. Ground water level.
5	Neighbouring or adjacent buildings or structures	Displacement; cracks, weakening, subsidence, deformation and tilting of structures.
6	Underground Utilities	Displacement or leakage of or damage to underground utilities.

6.2.4 General Safety and Construction Requirements

(1) Materials and equipment to be used for Earthwork Support shall be appropriate for the width and depth of the excavation and free from damage or defects that might impair their proper function.

(2) Workers shall not be allowed to enter any excavation until Earthwork Support is installed prior to the work commencing.

(3) Earthwork Support shall proceed progressively so that no excavated faces are left without support or at risk of weakening or collapse at any time.

(4) Excavation to a level greater than 60cm below the planned bottom level of support when the support itself is not yet installed shall not be allowed.

(5) If temporary removal of individual members of Earthwork Support is necessary, safety measures shall be taken to ensure the safety of workers, such as installing additional temporary struts to support the additional loads imposed on parts of the system.

(6) When removing Earthwork Support, the Contractor shall prohibit anyone other than the workers engaged in the removal work to enter the working area and vicinity.

(7) Backfilling and compaction of any excavation shall be performed in parallel with the removal of Earthwork Support.

6.2.5 Safety Measures for Shoring

(1) “Shoring” shall include walings, struts and like support.

(2) Shoring shall be securely installed and fixed to Earthwork Support to prevent detachment and any movement or failure.

(3) All members acting in compression (excluding diagonal struts) shall be butt-jointed, and timber shoring shall be jointed with two or more doubling plates.

(4) Connecting parts of shoring or diagonal shoring or intersections, shall be reinforced with backing plates and bolts (timber) and welding with reinforcing plates (steel).

(5) For earth retaining work with intermediate piles, fix struts on intermediate piles rigidly.

(6) When shoring is fixed to or relies on an existing structure or building, the Contractor shall ascertain that the structure or building is able to withstand the applied load.

(7) Gaps between earth retaining wall (steel sheet piles, H-shape steel piles and the like) and walings shall be filled with mortar, concrete, steel plates and suitable wedges.

(8) Connections between struts and walings shall be reinforced with ready-made stiffeners, stiffener plates, concrete/mortar filling, stiffener jacks, etc.

6.2.6 Safety Measures for Ground Anchor Works

(1) Anyone other than designated personnel shall not operate the boring machine.

(2) No one (except those essential to the post-tensioning operations) shall be permitted to be behind the tensioning jack during tensioning to prevent any injury through breaking of the anchor tendon during tensioning.

(3) The Contractor shall check any damage in the grout hoses and joints before commencing any grout injection.

6.2.7 Adjacent Goods, Excavated Spoil and the like

(1) When placing any Goods, excavated spoil and the like on the ground surface at the top and adjacent to any excavation, the Contractor shall take measures to prevent it from falling.

(2) The Contractor shall not place any Goods, excavated spoil, backfill material and the like where the weight exceeds the load considered in the design of the Earthwork Support.

6.3 COFFERDAMS

6.3.1 General

(1) Refer to JSSS Annex 1.1: [*Definitions and Abbreviations*] for the definition of Cofferdam.

(2) Cofferdams are generally constructed as earth dykes, caissons, steel sheet piling, double steel sheet piles, steel pipe piles and the like.

6.3.2 Planning and Design

The Contractor shall design Cofferdams so that they are fit for the purpose for which they are intended and take account of ground conditions and surrounding conditions including:

(1) The effect of vibration from site operations including piling or ground improvement.

(2) Access and working space necessary to execute the Works.

(3) River discharge, water levels, tide levels, wave height, free board, seismic load, external force and any other relevant water conditions.

(4) Waterborne traffic.

(5) Avoidance of any damage by piling operations and the protection of the structural integrity of existing river or canals, banks, dykes and the like.

(6) Reduction of river cross sectional area, increased flow rates and protection of the structural integrity of existing river or canal banks, dykes and the like.

(7) Effects of tides, wave action, flooding and the like, the consequent need for additional shoring and avoidance of loosening of shoring and joints.

(8) Provision of at least two safe evacuation routes from the working areas by means of ladders, stairs, etc. to evacuate in the case of any danger of collapse of or inundation in the Cofferdam.

(9) Provision of life-saving equipment including buoyancy jackets, lifebuoy, ropes and (where necessary) standby boats.

(10) Measures for avoiding water pollution from construction and dismantling of Cofferdams.

(11) Measures for safe dismantling and removal.

6.3.3 Monitoring

Refer to JSSS 2.1.7 [*Monitoring and Records*] for general requirement of monitoring and records.

The Contractor shall prepare a Monitoring Plan covering visual and instrument monitoring based on Table 6.3.1 [*Example of Visual and Auditory Monitoring Items*] and Table 6.3.2 [*Example of Instrument Monitoring Items*].

The contents of the tables are reference only and the Contractor shall prepare a detailed Monitoring Plan and submit to the Engineer as a part of the Safety Plan or the Method Statement.

Table 6.3.1: Example of Visual and Auditory Monitoring Items

	Locations	Monitoring Items
1	Cofferdam Generally	Water seepage. Ability and capacity of pumping arrangements to maintain safe working conditions. Meander/horizontal displacement and vertical displacement

		along top. Crack, deflection and swelling. Opening of joints.
2	Piles, walings, struts, shoring and other members	Deflection, deformation and abnormal sound of piles, walings, struts, shoring and other members. Opening of joints or breakage of piles, cross members, or breakage and loosening of bolts.
3	Base of Excavation	Water spring and ground water flow. Sand boiling. Heaving of the base.
4	Neighbouring Properties or Structures on or outside the Site	Cracks, subsidence, deformation and tilting of structures.

Table 6.3.2: Example of Instrument Monitoring Items

	Locations	**Monitoring Items**
1	Cofferdam Generally	Displacement, stress of Earthwork Support. Earth pressure and water pressure acting on Earthwork Support.
2	Shoring and struts	Axial force of strut, other supports and ground anchors.
3	Base of Excavation	Displacement of base of excavation. Water pressure of spring of water, water inflow.
4	Neighbouring Properties or Structures on or outside the Site	Displacement: cracks, weakening, subsidence, deformation and tilting of structures.
5	Underground Utilities	Displacement, damage or leakage of underground utilities.

6.3.4 General Safety and Construction Requirements

(1) For shoring works, refer to JSSS 6.2.5[*Safety Measures for Shoring*].

(2) The Contractor shall provide training to all Contractor's Personnel who are to work on the construction, maintenance and removal of the Cofferdam or within the Cofferdam, so that they are aware of all risks and countermeasures including water leakage, adverse weather, severe waves or adverse water conditions, so that they can work safely and when necessary, evacuate the working areas efficiently and safely.

(3) The Contractor shall display visible and clear warning notices of all hazards and advisory notices giving directions and information, including emergency contacts, safe escape routes, directions to and locations of life-saving equipment, assembly areas, evacuation

boats and the like.

(4) The Contractor shall implement measures to prevent collisions with waterborne traffic, including warning signs and lights during the night or in heavy rain mist or fog.

(5) The Contractor shall establish a system to confirm the safety of the Cofferdams, appoint a person-in-charge who shall be present at all times and shall be responsible for issuing an evacuation order if and when necessary.

(6) The Contractor shall evacuate Contractor's Personnel whenever there is any danger due to water leakage through Cofferdams or from the ground within the working area.

(7) Whenever any defect is identified in the Cofferdam, the Contractor shall implement repair and improvement measures to ensure the safety of Contractor's Personnel and prevent any personnel from re-entering the Cofferdam until it has been inspected by the HSO and certified by him to be safe for use.

6.3.5 Excessive and Sudden Rise in Water Level.

(1) The Contractor shall analyse any risk due to sudden rise of water level and excessive water level above the design basis for the highest water level and prepare for this as applicable in the Safety Plan.

(2) This shall include procedures for monitoring water levels as described below.

(a) Monitoring water levels with instruments and recording equipment at the Site and obtaining forecasting information of water levels;

(b) Communications among persons in charge of monitoring of water levels, persons responsible for the works in the Cofferdams, the HSO and workers in the Cofferdam;

(c) Instructions to Contractor's Personnel for evacuation;

(d) Stop work in accordance with JSSS 1.13 [*HSO – Scope of Duties and Authority*]; and

(e) Resume work when water level has subsided and after inspection and certification by the HSO that it is safe to do so.

6.3.6 ~~Monitoring~~ Water Level and Other Conditions

In addition to the requirements of JSSS 2.1.7 [*Monitoring and Records*], the Contractor shall monitor and keep records of all climatic, river, lake or marine conditions in the direct vicinity of any Cofferdam including for example, the water level at various times throughout the day, tidal data, speed and direction of waterflow, wave height, wind speed and direction.

The Contractor shall provide all instruments and facilities to obtain the data and submit reports to the Engineer on a daily basis and compile on weekly basis.

コメントの追加 **[MJD126]:** "Monitoring" is used already in 6.3.3

6.4 WALKWAYS

6.4.1 General

(1) This Section includes safety measures relating to the safe movement of persons to and around the Site with respect to walkways.

(2) Refer to JSSS 2.5.7 *[Preventing Falls from Walkways]* for interpretation of the word "walkways".

(3) ~~Ladders and stepladders (other than fixed ladders) shall not be used for walkways in principle. Staircases shall be provided in principle where persons are necessary to move up and down.~~ In principal, steps or staircases shall be provided for the vertical movement of all persons. Steep ramps shall be avoided and non-slip measures shall be adopted on all ramps. Ladders and stepladders may be used only if the HSO considers the risk of their use to be low.

(4) For temporary steps and staircase structures the requirements of JSSS 6.5 [*Scaffolding*] shall apply.

(5) For Fall prevention from walkways, ladders and stepladders the requirements of JSSS 2.5 [*Fall Prevention*] shall apply.

(6) Details of the following shall be included in the Safety Plan required by JSSS 1.7 [*Contractor's Safety Plans*] and JSSS 6.1.1 (6) [*Safety Plan for Temporary Works*]:

(a) Locations and available periods of walkways to be provided;

(b) Drawings of walkway structures, indicating structure type, materials and main dimensions for bridge type walkways where the height and length is 10m or more;

(c) Types of temporary walls, barriers or other separation between walkways and working areas, roads or footpaths on or around the Site; and

(d) Locations of emergency exits and evacuation routes.

(7) The Contractor shall:

(a) Provide designated walkways to, in and around the various workplaces at the Site to ensure the safe and secure movement of all persons at all times;

(b) Provide and maintain clear signage so that all users are aware of the locations and routes;

(c) Provide and maintain adequate lighting;

(d) Ensure that walkways have sufficient dimensions and load-bearing capability for the intended purpose;

(e) Ensure that there are no obstacles in walkways and that surfaces are level and safe, maintain all in a clean and orderly condition to avoid any falls, slips and injury;

(f) Ensure that walkways do not exceed a gradient of 30 degrees. Steeper gradients shall be provided with steps or staircases or ladders where appropriate; and

(g) Ensure that ramps, steps and staircases have slip resistant surfaces and that they are provided with handrails and toe boards in accordance with JSSS 2.5.5 [*Handrails*] and JSSS 2.5.6 [*Toeboards*].

6.4.2 Emergency Exits and Safe Evacuation Routes

The Contractor shall provide clear and illuminated signage so that all persons are made aware of the locations of emergency exits and safe evacuation routes and maintain all such locations and routes in a clean, safe and readily available condition.

コメントの追加 [MJD127]: (Refer to earlier query)

No need to mention ladders or stepladders in title?

コメントの追加 [SS128R127]: Yes, 6.4 specifies to safe movement.
We leave WALKWAYS as it is.

コメントの追加 [SS129]: JICA requested to stipulate this sentence in Japanese. NK prepared this in English, so please edit this English.

JICA sentence is "上下の移動が必要な場所には原則として階段を設ける".

コメントの追加 [MJD130R129]: It is better as:
In principal, steps or staircases shall be provided for vertical movement by all persons.
Please advise

コメントの追加 [SS131R129]: Yes, I agreed to replace with your sentence. May I know "vertical movement" include "steep slope". Can you add some word such as movement of vertical or steep places"?

6.4.3 Vertical Access

The Contractor shall provide steps, stairs and ramps as means of providing safe access or egress from excavations or different working levels.

Steps, stairs and ramps shall be constructed as follows:

(1) With Scaffolding in accordance with JSSS 6.5 [*Scaffolding]*, provided with handrails and non-slip treads.

(2) With purpose made timber or metal ramps comprising plywood boarding and structural timber framing.

6.4.4 Ladders and Stepladders

For the purposes of interpretation and unless otherwise stated in JSSS the word “ladders” shall be deemed to mean portable ladders, namely those that can be easily moved or carried even if temporarily restrained and that are not an integral part of a building, structure or equipment.

~~Fixed ladders meaning those that are permanently attached to a building, structure, or equipment shall be the subject of separate design by the Contractor if for use in Temporary Works or by the Employer if for use in Permanent Works.~~

~~Fixed ladders whether for use in Temporary Works or Permanent Works shall be provided with fall protection for lengths of 7.32 metres and above in accordance with ANSI standard A14. 2-1990.~~

The Contractor shall comply with the following requirements regarding the use of ladders and stepladders:

(1) Ladders shall:

(a) Be of sound structure, clean and not contaminated by any slippery material;

(b) Be without visible signs of defect, damage, corrosion, and shall otherwise in safe condition;

(c) Be at least 30 cm wide;

(d) Have steps with an interval of 25cm to 35cm and evenly spaced; and

(e) Have slip-proof steps or have other measures to prevent slipping.

(2) Stepladders shall

(a) Be of sound structure, clean and not contaminated by any slippery material;

(b) Be without visible signs of defect, damage, corrosion, and shall otherwise in safe condition;

(c) Have an angle between the front rail and the floor not exceeding 75 degrees and for folding stepladders they shall be equipped with a lock (such as a spreader with lock) to secure the angle made by the front rail and the floor;

(d) Steps shall be non-slip and of sufficient size to ensure safe operation; and

(e) Rails shall have non-slip feet or shoes.

(3) Use of ladders and stepladders

The Contractor shall ensure with respect to use of both ladders and stepladders that:

(a) Users shall read and follow all labels/markings on ladders or stepladders, be aware of and never exceed the maximum load rating of the ladder or stepladder and of the weight it is supporting, including the weight of any tools or equipment;

(b) Users shall avoid electrical hazards, always look for overhead power lines before handling ladders or stepladders. Avoid using metal ladders or stepladders near

コメントの追加 [SS132]: 18. (60)

コメントの追加 [SS133]: No. 60
JICA commented to delete theses two sentences with the following reasons:

（理由）
➢fixed ladder
は鋼製で構造物に堅固に設置された垂直方向の移動に用いられるものを想定していると考えられるが、OSHA等の記述をみると安全対策として多岐にわたる記述があり、ご提案の記載ではあまりに不十分（また、7.32mを超えるladderはANSI A14.2-1990に従うという根拠は見出せません。（ANSI自体が2017年に見直されA14.2～14.5に変わっています））。
➢従って今般作成のJSSSではfix ladderについては扱わない整理とする。
➢すると6.4.4冒頭に追記されたthe word “ladders” shall be deemed to mean portable ladders,という表現とも整合する。
➢6.4.1 (3)については、「梯子は原則として使わない」ではなく、「原則として階段を使う」ことが記述されるべき。その上で、二つ目の文（安全性が確保されるとHSOが認められた場合に限ってはしごを使ってよいという記述）につなげる。
➢かかる原則論を記述することを前提に、2.5.7 (1)に「階段」を加える。

コメントの追加 [MJD134R133]: No comment will change.

コメントの追加 [SS135R133]: Confirmed.

power lines or exposed energised electrical equipment;

(c) Ladders or stepladders shall be inspected prior to use. If a ladder or stepladder is damaged, it shall be removed from service and suitably tagged until repaired or discarded; ~~and~~

(d) Ladders or stepladders shall only be placed on a stable, firm and sufficiently strong base giving level and safe support and so that the rungs or steps remain horizontal, as well as any loading placed on it; and

(e) The top rung of a ladder or top step of a stepladder shall not be used as a rung/step unless designed for that purpose.

(4) Additional Requirements for Use of ladders

The Contractor shall ensure with respect to use of ladders:

(a) Ladders shall maintain an angle between foot and floor of L (horizontal length): H (height) = 1: 4 (75.5 degrees);

(b) Ladders shall have the top projecting at least 1 m over the landing floor;

(c) Ladders shall not be placed on boxes, or other unstable bases to obtain additional height and connected ladders to give greater height or reach shall not be allowed;

(d) Suspended ladders shall be anchored in a secure manner so that they cannot be displaced or swing;

(e) Ladders shall be secured before any use and prevented from slipping during use by:

(i) Securing the side rails at or near the top and the bottom; and

(ii) Providing an effective anti-slip shoe or foot~~; and~~

~~(iii) Having another worker support the lower part of the ladder~~;

(f) No extendable ladder shall be used where its sections cannot be locked and which could therefore move while in use; and

(g) Where a ladder or a series of ladders rise for a vertical height of 9 m or more above the base level, safe landing areas or rest platforms shall be provided at suitable intervals wherever possible.

(5) Additional Requirements for Use of Stepladders

The Contractor shall ensure with respect to use of stepladders:

(a) Stepladders shall not be used for work at heights of 2m or more. The Contractor shall adopt other measures for work in excess of 2m such as or providing Scaffolding in accordance with JSSS 6.5 [*Scaffolding*];

(b) ~~Step ladders~~ Stepladders shall not be used as a single ladder or in a partially closed position;

(c) Treads of stepladders shall have the correct sized area and slip resistant finish for safe working;

(d) Restraint Clasps shall be securely locked before any use;

(e) Stepladders shall not be placed on unstable or uneven surfaces;

(f) Stepladders shall not be positioned in front of doors;

(g) ~~The top rung of a ladder or step of a step ladder stepladder shall not be used as a rung/step unless designed for that purpose~~;

(h) For use of Stepladders as a support for trestle Scaffolds refer to JSSS 6.5

コメントの追加 **[SS136]:** Moved from 6.4.4(5)(g) with some modification.

コメントの追加 **[MJD137R136]:** No comment will change

コメントの追加 **[SS138R136]:** Confirmed.

コメントの追加 **[SS139]:** JICA commented There is no such provision of (iii) and when fixed both top and foot, no need support by other worker.

コメントの追加 **[MJD140R139]:** No comment will change

コメントの追加 **[SS141R139]:** Confirmed.

コメントの追加 **[SS142]:** Typo:

コメントの追加 **[MJD143R142]:** Thank you, will change, interestingly OSH uses both

コメントの追加 **[SS144R142]:** JICA requested the above. Confirmed.

コメントの追加 **[SS145]:** JICA commented to move this to 6.4.4 (3) because this stipulate for both ladder and stepladder.
NK agreed.

コメントの追加 **[MJD146R145]:** No comment will change

コメントの追加 **[SS147R145]:** Confirmed.

[*Scaffolding*]; and

(i) The user can maintain a safe handhold when carrying a load unless this is otherwise justified by the height of the task, nature of work and the like.

6.4.5 Inspection

In accordance with JSSS 1.13 [*HSO - Scope of Duties and Authority*] the HSO shall regularly inspect all walkways, ladders and ~~step ladders~~ stepladders, ensure that same are safe and fit for the intended purpose and visibly certify each as safe for use or otherwise.

6.5 SCAFFOLDING

6.5.1 General

(1) This Section contains requirements for various types of Scaffolding including supported scaffolds (for example tube and coupler scaffolds and fabricated frame scaffolds), mobile scaffolds, suspended scaffolds, trestle scaffolds and mobile elevating work platforms.

(2) Not all types of Scaffolding are separately described in this Section and the requirements of this Section are therefore of general application. Requirements for any one (1) type of Scaffolding shall also apply generally to all types and configurations unless otherwise stated or apparent from the wording and context.

(3) All Scaffolding shall be designed, erected, tested, inspected, used, dismantled and removed by Contractor's Personnel that have been trained and certified for such operations in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*].

(4) All Scaffolding, shall be carried out in compliance with the manufacturer's written instructions or the design of the Contractor.

(5) The design, management, provision, safe use and safe removal of Scaffolding shall comply with the requirements of JSSS 6.1.1 [*Design and Provision of Temporary Works ~~Generally~~*].

コメントの追加 **[MJD148]:** Heading changed

(6) Unless specified elsewhere in JSSS or in any of the compliance standards, all Scaffolding and Scaffold components shall be capable of supporting, without failure, its own weight and at least 4 times the maximum intended load applied or transmitted to it.

(7) Scaffolds and Scaffold components shall not be loaded in excess of their maximum intended loads or rated capacities, whichever is less.

(8) Scaffolding shall not be used for any purpose other than the intended original purpose and for example shall never be used for hoisting loads. The Contractor shall provide other specific types of Contractor's Equipment (such as material hoists) for that purpose.

(9) Scaffolding shall be removed immediately upon completion of the work for which it is provided.

6.5.2 Compliance Standards

(1) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall comply with any one (1) of the following standards:

(a) OSHA 1926 Subpart L [Scaffolds];

(b) ANSI/ASSP A10.8 – 2019 Scaffolding Safety Requirements equipment - Part 1: Scaffolds [Performance requirements and general design]; and

(c) BS EN12811-1:2003 Temporary works equipment - Part 1: Scaffolds [Performance requirements and general design]

6.5.3 Notices to be Displayed ~~on Scaffolds~~

(1) Following inspections by HSO, suitable signage shall be applied to Scaffolds clearly indicating for example:

(a) "Scaffold Complete and Safe For Use";

(b) "Scaffold Not Complete - Do Not Use"; and

(c) "Scaffold Not Safe For Use".

(2) When any Scaffold is to be used for loading of Goods, the Contractor shall display a notice indicating the maximum load capacity of each Scaffold.

(3) Scaffolds shall also be tagged with the names of the erector and the person responsible for inspection and maintenance of the Scaffold.

(4) All notices shall be clearly visible and in easy-to-see locations.

6.5.4 ~~Scaffolding~~ Assembly, Erection, Alteration and Dismantling ~~Generally~~

コメントの追加 **[MJD149]:** To simplify and make headings consistent

The Contractor shall take the following measures when assembling or erecting, altering or dismantling all types of Scaffolding:

(1) Scaffolding shall be assembled or erected, altered and dismantled only by competent personnel and the work should always be carried out under the direction of a competent Superintendent.

(2) Working areas where Scaffolding is being assembled or erected, altered and dismantled shall be enclosed with temporary fences or barriers. The Contractor shall prevent entry of any non-authorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry*].

(3) During erection of Scaffolding 2m high and above, boarded areas shall be provided for safe temporary storage of Scaffolding tubes, couplings, fittings or components and other materials and equipment.

(4) All workers engaged in the assembly or erection, alteration and dismantling of any Scaffolding shall be provide with PFAS and ensure that such workers use this.

(5) Scaffold boards shall each be securely fixed at a sufficient number of points to provide constant support with no movement or dislocation and no gaps that may create a dropping hazard.

(6) When moving Scaffold boards, ensure that they are securely supported in at least three (3) locations, the length of any projection from supports shall be at least 10cm and not exceeding one-eighteenth of the length of the Scaffold boards.

(7) When stacking the timber sole plate or runners ensure that they are stacked in the longitudinal direction, over supports and with 20 cm overlaps.

6.5.5 Inspection and Maintenance ~~of Scaffolding~~

Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the Contractor shall comply with the following:

(1) Every Scaffold from which a person could fall 2m or more shall be thoroughly examined by the HSO (or his delegated assistant):

(a) Before it is brought into use;

(b) After any substantial alteration or extension;

(c) At least once in every 7 days; and

(d) Whenever it has been exposed to adverse climatic conditions, earthquake or other factors which may have affected its safety.

(2) A written record of the examination and regular inspections with details of any repair measures shall be prepared and kept by the HSO.

(3) The examinations and regular inspections shall include:

(a) Check that the Scaffold is provided and used in accordance with the Method Statement, Safety Plan and its design;

(b) Condition of Working Platforms and of any damage to fixings;

(c) Condition and any loosening at the fastening, connecting and mounting, portions of standards, ledgers, brackets, and the like;

(d) Condition and any damage and corrosion of couplings, fittings, clamps and accessories;

(e) Condition and any damage and corrosion of fall prevention facilities and that they are intact and secure;

(f) Condition of mountings and presence of toe boards;

(g) Condition of bases, screw jacks, castors, brakes, sole plates and the like and ensure there is no movement or settlement;

(h) Condition of mountings and presence of diagonal bracings, stays, anchors, ties and other bracing, support or reinforcement materials; and

(i) Condition of mountings and presence of posts, standards, ledgers and transoms.

(4) The Contractor shall carry out all necessary remedial and repair work necessary to rectify any deterioration, defect or damage and shall, if necessary, stop the use of the Scaffolding until such work has been properly completed, re-inspected and re-certified as safe for use by the HSO.

6.5.6 Scaffold Platforms

Scaffold platforms shall comply with the following:

(1) Each platform on all working levels of Scaffolding shall be fully planked or decked between the front uprights and the handrail supports as follows:

(a) Platforms shall be of adequate size and strength and with true dimension and no twist or bending, no splits, holes or damage;

(b) Each platform unit shall be installed so that the space between adjacent units and the space between the platform and the uprights is no more than 2.5 cm wide, except where the Contractor can demonstrate that a wider space is necessary;

(c) Where the Contractor makes the demonstration provided for in paragraph (b) above, the platform shall be planked or decked as fully as possible and the remaining open space between the platform and the uprights shall not exceed 24 cm.; and

(d) The requirement to provide full planking or decking does not apply to platforms used solely as walkways or solely by the workers performing Scaffold erection or dismantling. In these situations, only the planking that the Contractor establishes is necessary to provide safe working conditions is required.

(2) Except as may be provided separately for individual types of Scaffold, Scaffold platforms and walkways shall be at least 45 cm wide.

Where it is not practicable to provide 45 cm width, the Contractor shall secure a width as wide as feasible for the work, and the workers on those platforms and walkways shall be protected from fall hazards by the use of handrails and/or personal fall arrest systems.

(3) Except as provided separately for individual types of Scaffold, the front edge of all platforms shall not be more than 36 cm from the face of the work, unless handrails are erected along the front edge and/or personal fall arrest systems are used to protect the workers from falling.

(4) Further requirements to those specified above, shall comply with OSHA 1926.451 [General requirements, (b) Scaffold platform construction].

6.5.7 Supported Scaffolds

(1) General

(a) Scaffolds with a height to base width (including outrigger supports, if used) ratio

of more than four to one (4:1) shall be restrained from tipping by guying, tying, bracing, or equivalent means;

(b) Poles, legs, posts, frames, and uprights shall bear on base plates and mud sills or other adequate firm foundation;

(c) Footings shall be level, sound, rigid, and capable of supporting the loaded Scaffolding without settling or displacement;

(d) Poles, legs, posts, frames, and uprights shall be plumb and braced to prevent swaying and displacement;

(e) When moving platforms to the next level, the existing platform shall be left undisturbed until the new bearers or end frames have been set in place and braced prior to receiving the new platforms; and

(f) Further requirements to those specified above, shall comply with OSHA 1926.451 [General requirements, (c) Criteria for supported scaffolds].

(2) Tube and Coupler Scaffolds

(a) Transverse bracing forming an "X" across the width of the Scaffold shall be installed at the Scaffold ends and at least at every third set of posts horizontally (measured from only one end) and every fourth runner vertically;

(b) On straight run Scaffolds, longitudinal bracing across the inner and outer rows of posts shall be installed diagonally in both directions, and shall extend from the base of the end posts upward to the top of the Scaffold at approximately a 45-degree angle;

(c) Where conditions preclude the attachment of bracing to posts, bracing shall be attached to the runners as close to the post as possible;

(d) Bearers shall be installed transversely between posts, and when coupled to the posts, shall have the inboard coupler bear directly on the runner coupler. When the bearers are coupled to the runners, the couplers shall be as close to the posts as possible;

(e) Runners shall be installed along the length of the Scaffold, located on both the inside and outside posts at level;

(f) Couplers shall be of a structural metal, such as drop-forged steel, malleable iron, or structural grade aluminium, the use of grey cast iron is prohibited; and

(g) Further requirements to those specified above, shall comply with OSHA 1926.452 [Additional requirements applicable to specific types of scaffolds, (b) Tube and coupler scaffolds].

(3) Fabricated Frame Scaffolds

(a) Frames and panels shall be braced by cross, horizontal, or diagonal braces, or combination thereof, which secure vertical members together laterally. The cross braces shall be of such length as will automatically square and align vertical members so that the erected Scaffold is always plumb, level, and square. All brace connections shall be secured;

(b) Frames and panels shall be joined together vertically by coupling or stacking pins or equivalent means;

(c) Where uplift can occur, which would displace Scaffold end frames or panels, the frames or panels shall be locked together vertically by pins or equivalent means;

(d) Brackets used to support cantilevered loads shall:

(i) Be seated with side-brackets parallel to the frames and end-brackets at 90

degrees to the frames;

(ii) Not be bent or twisted from these positions; and

(iii) Be used only to support personnel, unless the Scaffold has been designed for other loads.

(e) Further requirements to those specified above, shall comply with OSHA 1926.452 [Additional requirements applicable to specific types of scaffolds, (c) Fabricated frame scaffolds].

6.5.8 Suspended Scaffolds

(1) General

(a) Suspended Scaffolds comprise Working Platforms suspended from upper levels for example with ropes, cables or chains and all necessary support framing, with or without Hoisting Equipment.

(b) Further requirements to those specified above for suspended Scaffolds, shall comply with:

(i) OSHA-1926.451 [General requirements]; and

(ii) OSHA 1926.452 [Additional requirements applicable to specific types of scaffolds].

(2) The following safety measures shall apply to interior hung Scaffolds which are suspended from roof structures, ceiling beams or other structural members:

(a) Capacity: of interior hung Scaffolds:

(i) Each Scaffold and Scaffold component except as provided in (ii) below shall be capable of supporting, without failure, its own weight and at least 4 times the maximum intended load applied or transmitted to it; and

(ii) Each suspension rope, including connecting hardware, used on non-adjustable suspension Scaffolds shall be capable of supporting, without failure, at least 6 times the maximum intended load applied or transmitted to that rope.

(b) Construction: of interior hung Scaffolds:

(i) Overhead supporting members (roof structure, ceiling beams, or other structural members) shall be inspected and checked for strength before the Scaffold is erected; and

(ii) Suspension ropes and cables shall be connected to the overhead supporting members by shackles, clips, thimbles, or other means that meet equivalent criteria (e.g., strength, durability).

(c) Inspection:

(i) Scaffolds shall be inspected before every work shift, and if any abnormality is found, the work shall be stopped; repairs made and the Scaffold re-inspected in accordance with JSSS 6.5.5 (4); and

(ii) Wire ropes, chains, hooks and shackles used in the Scaffolds shall be inspected before every work shift in accordance with JSSS 5.4.1 [*Hoisting and Rigging Equipment*] If any abnormality is found, they shall be replaced.

(d) Prohibited activity

The use of any ladders or stepladders on suspended Scaffolds shall be prohibited.

6.5.9 Mobile Scaffolds

(1) Mobile Scaffolds shall be braced by cross, horizontal, or diagonal braces, or combination thereof, to prevent distortion or collapse of the Scaffold and to secure vertical members together laterally so as to automatically square and align the vertical members. Scaffolds shall be plumb, level, and squared. All brace connections shall be secured.

(2) Scaffold casters and wheels shall be locked with positive wheel and/or wheel and swivel locks, or equivalent means, to prevent movement of the Scaffold while the Scaffold is used in a stationary manner.

(3) Manual force used to move the Scaffold shall be applied as close to the base as practicable, but not more than 1.5 m above the supporting surface.

(4) Power systems used to propel mobile Scaffolds shall be designed for such use. Forklifts, trucks, similar motor vehicles or add-on motors shall not be used to propel Scaffolds unless the Scaffold is designed for such propulsion systems.

(5) Platforms shall not extend outward beyond the base supports of the Scaffold unless outrigger frames or equivalent devices are used to ensure stability.

(6) Where levelling of the Scaffold is necessary, screw jacks or equivalent means shall be used.

(7) Caster stems and wheel stems shall be pinned or otherwise secured in Scaffold legs or adjustment screws.

(8) Safety measures shall be applied before relocating the Scaffolds:

(a) Check the floor surface in advance to prevent the Scaffold from overturning due to any irregularities or obstructions;

(b) Move the Scaffold only after releasing brakes on all castors;

(c) Do not move the Scaffold when any workers or Goods are on the Scaffold;

(d) Ensure that there are no obstructions in the route including any overhead obstructions; and

(e) Do not allow any persons other than workers engaged in the relocation to enter the moving areas of the Scaffold or in the vicinity.

(9) Prohibited activity

Use of the Mobile Scaffolds shall be prohibited for the following:

(a) Use as a support for lifting dropping Goods, debris or waste materials or for dropping same;

(b) Use for the purpose of providing a barrier by covering with sheet material with the risk of collapse due to exposure to wind;

(c) Use for work of grit blasting or water jetting, where the reaction force can destabilise the Scaffold or workers on the Scaffold; and

(d) Use as floor to support mobile ladders, stepladders, trestles.

(10) Further requirements to those specified above shall comply with OSHA 1926.452 [Additional requirements applicable to specific types of scaffolds, (w) Mobile scaffolds].

6.5.10 Trestle Scaffolds

(1) Trestle Scaffolds can comprise:

(a) Special proprietary type free-standing trestle platforms; or

(b) Scaffold boards or lightweight staging boards supported on stepladders or other tripod type ladders.

(2) For requirements on Stepladders refer to JSSS 6.4.4 [*Ladders and Stepladders*].

(3) The following safety measures shall apply:

(a) The distance between the centre lines of the supporting stepladders shall not exceed 1.8m, width of the Scaffold boards shall be at least 45 cm;

(b) Scaffold boards shall not be placed any higher than the second highest rung or step of the ladder supporting the platform;

(c) If timber Scaffold boards are used, the overlap between boards shall be at least 20cm; and

(d) The length of projection of the platform from the end support shall be at least 10cm and not more than one-eighteenth of the length of the boards.

6.5.11 Mobile Elevating Work Platforms

This Clause specifies requirements for mobile elevating work platforms (also known as aerial lifts) including extendable boom platforms, articulating boom platforms, vertical towers and a combination of any such devices.

(1) The following safety measures shall apply for placing and operating mobile elevating work platforms:

(a) Only trained Contractor's Personnel, certified as such by the HSO shall be permitted to operate in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*];

(b) All operation shall be carried out in accordance with the manufacturer's written instructions;

(c) Mobile elevating work platforms shall never be used beyond the load limit recommended by the manufacturer, which shall also be clearly displayed on the equipment; and

(d) Safety devices shall not be switched off or isolated.

(2) Measures before operation of mobile elevating work platform:

(a) Designate operation as "Dangerous Work" and in accordance with JSSS 2.3 [*Prohibition of Entry*] demarcate working areas and take measures to prevent entry to unauthorised personnel;

(b) Place a Spotter, in accordance with JSSS 2.4 [*Spotters*] to guide the mobile elevating work platform and, in case of emergency to properly address the situation (e.g. to call help when the operator is incapacitated);

(c) Determine signals in accordance with JSSS 2.4.5 [*Signals*], and

(d) Determine in advance the appropriate working speed limit for the mobile elevating work platform according to the height of the Working Platform and the length of the boom, etc. and ensure that the operator never drives the equipment in excess of this limit.

(3) Measures at locating mobile elevating work platform:

(a) The parking brakes of vehicle shall be set;

(b) Wheel chocks shall be installed before using the mobile elevating work platforms on an incline, provided they can be safely installed;

(c) When outriggers are used, they shall be positioned on pads or a solid surface; and

(d) Lift controls shall be tested each day prior to use to determine that such controls are in safe working condition.

(4) Measures at operation on mobile elevating work platform:

(a) Workers shall always stand firmly on the floor of the basket/Working Platform, and shall not sit or climb on the edge of the basket or use planks, ladders, or other devices for a work position;

(b) Workers shall use PPE including PFRS;

(c) Workers shall be prohibited from taking dangerous actions such as moving from the working basket/Working Platform to neighbouring structure, standing on and working from handrail;

(d) When the mobile elevating work platform has both platform (upper) and lower controls, the upper controls shall be in or beside the platform within easy reach of the operator. Lower controls shall provide for overriding the upper controls. Controls shall be plainly marked as to their function. Lower level controls shall not be operated unless permission has been obtained from the worker in the lift, except in case of emergency;

(e) When leaving the operating position and when work is stopped the operator of the mobile elevating work platform shall:

(i) Put the Working Platform in the lowest position;

(ii) Stop the prime engine/motor; and

(iii) Apply the parking brake securely and ensure the equipment is securely parked.

(f) Stop work at a height of 2 m or more in case of adverse weather in accordance with JSSS 2.7 [*Adverse Weather Requirements*].

(5) Measures of moving mobile elevating work platform

(a) Mobile elevating work platform shall not be moved when the boom is elevated in a working position with workers in the basket, except for equipment which is specifically designed for this type of operation; and

(b) Before moving the mobile elevating work platform for travel, the boom(s) shall be inspected to see that it is properly cradled and outriggers are in stowed position.

(6) Inspection and maintenance of mobile elevating work platform

(a) Carry out inspection in accordance with JSSS 4.2.1 [*Requirements Generally*]; and

(b) Carry out maintenance, repair and installation/removal of the Working Platform in accordance with JSSS 4.2 [*Inspection, Maintenance and Repair*] and JSSS 4.3 [*Safety Requirements*].

(7) Prohibition of use for other purposes

Mobile elevating work platforms shall not be used for any purpose other than the intended original purpose and for example shall never be used for hoisting loads.

6.6 ELEVATED ACCESS STRUCTURES

6.6.1 General

This Section includes safety measures relating to Elevated Access Structures which act as act as temporary access, parking, working and/or storage areas which also accommodate Contractor's Equipment, Goods and temporary facilities as necessary to permit the construction operations to be performed from these structures on the underlying or adjacent working area(s) within the Site.

6.6.2 Design and Management ~~Generally~~

(1) The design, management, provision, safe use and safe removal of Elevated Access Structures shall comply with the requirements of JSSS 6.1.1 [*Design and Provision of Temporary Works ~~Generally~~*].

コメントの追加 **[MJD150]:** Heading changed

(2) For related JSSS requirements, refer to the following and other related parts of JSSS including:

(a) JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*]; and

(b) JSSS 1.37 [*Design and Management of Temporary Works*].

(3) Erection and Removal of Elevated Access Structures

The Contractor shall:

(a) Enclose the working area where possible with temporary fences or barriers, prevent entry of any unauthorised personnel or prevent vessels from entering in the case of offshore or river, lake or marine works and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry];*

(b) Use of Measures to prevent Workers, Vehicles, Contractor's Equipment and Goods from falling;

The Contractor shall design and provide suitable measures to prevent workers falling including for example handrails specified in JSSS 2.5.5 [*Handrails*] to the perimeter of Elevated Access Structures.

The Contractor shall design and provide suitable measures to the perimeter of Elevated Access Structures prevent Vehicles, Contractor's Equipment and Goods falling including for example steel edge barriers and kerbs.

All edge barriers and kerbs shall be painted in black and yellow bands to show them as a hazard.

(c) Use of Measures to prevent collision with vessels;

For marine work or work in rivers or lakes, the Contractor shall provide all necessary warning signs, audible alarms, beacons and lighting and serve all notices to the relevant authorities as necessary to ensure that all shipping, boats and other vessels are aware of changes to navigation due to the presence of any Elevated Access Structures and that all risk of collision is avoided.

6.6.3 Further Safety Requirements

The Contractor shall take all necessary measures to ensure the safe provision, use and removal of Elevated Access Structures, including but not restricted to the following:

(1) Provide warning notices clearly showing the maximum Rated Capacity in clearly visible locations.

(2) Always respect the maximum Rated Capacity, taking account of all the persons/personnel, vehicles, Goods, etc. on the Elevated Access Structures.

(3) Provide any further signs containing user information or other mandatory usage requirements such as speed limits and markings all as necessary to demarcate roadways and walkways, working, storage, parking and other areas.

(4) Designate all work to and on any Elevated Access Structures and during use, as Dangerous Work and take all further measures that are required by JSSS 2.3 [*Prohibition of Entry*].

(5) Provide walkways in accordance with JSSS 6.4 [*Walkways*]

(6) Provide adequate lighting to ensure the safety of Contractor's Equipment, equipment of other parties, vehicles and persons in transit or whilst working.

(7) (for offshore work) Provide rescue and lifesaving equipment to be used in the event that any persons fall into the water, including a rescue boat and life belts or the like.

(8) Provide PFAS or PFRS to workers where appropriate including those engaged in the construction and removal of the Elevated Access Structures.

(9) Prevent any accident or collision by ensuring that all Contractor's Personnel that may be working on Elevated Access Structures and any Employer's personnel and other persons that may be present on such structures are fully informed about the work that may be in progress from time to time, including transportation and delivery of Goods and of the measures and any precautions that must be complied with.

(10) Provide relevant training in accordance with JSSS 1.20 [*Safety Induction Training*] to ensure the safety of all persons before they commence work on the Elevated Access Structures.

6.6.4 Inspection and Maintenance

Further to the requirements of JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*] the Contractor shall comply with the following:

(1) Every Elevated Access Structure shall be thoroughly examined by the HSO:

(a) Before it is brought into use;

(b) After any substantial alteration or extension;

(c) At least once in every 7 days; and

(d) Whenever it has been exposed to adverse climatic conditions, heavy seas, earthquake or other factors which may have affected its safety.

(2) A written record of the examination and regular inspections and details of any repair measures shall be prepared by the HSO.

(3) The examination and regular inspections shall include:

(a) Check if the Elevated Access Structure is provided and used in accordance with the Method Statement, Safety Plan and its design;

(b) Check items include:

(i) The structural condition of the Elevated Access Structure and of any deterioration, defect, damage or settlement;

(ii) Safety facilities including those for fall prevention are intact and fully operational; and

(iii) All other requirements of this Section are still being complied with.

(4) The Contractor shall carry out all necessary remedial and repair work necessary to rectify any deterioration, defect or damage and shall if necessary stop the use of the Elevated

Access Structure until such work has been properly completed, re-inspected and re-certified as safe for use by the HSO.

6.7 TEMPORARY ELECTRICAL INSTALLATIONS

6.7.1 General

(1) This Section contains safety requirements for the provision, use, relocation, repair and removal of temporary electrical power and lighting installations at the Site.

(2) Although the work in this Section is temporary, it shall be particularly noted that temporary electrical installations shall be designed, installed, inspected, tested, altered and removed by Contractor's Personnel that are qualified electricians, trained and certified for such operations in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*] and that follow strict procedures prepared by the Contractor and specified in the Method Statement and Safety Plan.

(3) The Contractor shall take precautions against the risk of death or injury from electricity during construction work. In particular, when executing refurbishment work in existing buildings where greater risk exists, the Contractor shall locate and indicate the types, positions and routes of all underground and concealed services with clearly visibly markings on ground, floor, wall and ceiling surfaces, and take all actions necessary to ensure construction safety in compliance with JSSS 3.1.2 [*Preparation and Work Planning*].

(4) The temporary electrical installations and all equipment used shall be safe, regularly inspected and properly maintained.

(5) Temporary electrical installations shall be removed immediately upon completion of the work for which they are used.

6.7.2 Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for Temporary Electrical Installations complying with OSHA 1926.405 [Wiring methods, components and equipment for general use].

6.7.3 General Safety Requirements

The Contractor shall avoid accidents to workers engaged on electrical works and also those workers who are not electricians but who are carrying out other works, by taking appropriate measures including the following:

(1) Understanding the system

(a) The Contractor shall ensure that Contractor's Personnel responsible for planning, managing or performing any part of the Works fully understand the danger in relation to electrical system on the Site or inside any existing building where any work is to be carried out, to ensure that the integrity of the electrical system is not compromised and all workers remain safe; and

(b) The Contractor shall ensure that relevant parts of existing electrical systems are isolated if the execution of any part of the Works may disturb or damage the existing electrical system and expose persons to electrical danger.

(2) Portable electrical equipment

(a) The Contractor shall ensure that tools, plugs and cables designed for domestic use are not used for construction works unless authorised by the HSO;

(b) The Contractor shall use cordless tools or other tools suitable for the Site conditions;

(c) Where cordless tools are not used, as a first preference the Contractor shall use cord and plug connected tools on a low voltage supply system with a maximum voltage to ground not exceeding 50V subject to the supply system at the Site;

(d) Where cordless tools or cord and plug connected tools with power supplies as described in (c) above are not available then, subject to authorisation by the HSO, the Contractor shall select cord and plug connected tools which are operated as stipulated below:

Under any of the following conditions, exposed non-current carrying metal parts of cord and plug connected tools shall be grounded:

(i) If in a hazardous (classified) location stipulated in OSHA 1926.407 [Hazardous (classified) locations];

(ii) If operated at over 150V to ground, except for guarded motors and metal frames of electrically heated appliances if the appliance frames are permanently and effectively insulated from ground;

(iii) If the equipment is one (1) of the types listed below:

- Hand held motor-operated tools;
- Cord and plug connected equipment used in damp or wet locations or by workers standing on the ground or on metal floors or working inside of metal tanks or boilers;
- Portable and mobile X-ray and associated equipment;
- Tools likely to be used in wet and/or conductive locations; and
- Portable hand lamps.

(3) GFCI (also referred to as RCD)

(a) Ensure that equipment, tools, leads, wires or cables are free of defect or damage, in particular when mains power supply is used;

(b) Use GFCI or RCD to detect any faults in the electrical system and rapidly switch off the supply; and

(c) GFCI or RCD shall be properly installed and enclosed; properly checked; treated with care; kept free of moisture and dirt; and protected against vibration and mechanical damage.

(4) Lighting systems

Protect cabling and bulbs against breakage. If a bulb breaks, the exposed filament may present a hazard. Have a system for checking bulbs regularly to maintain electrical safety and to keep the site well lit.

(5) Temporary electrical systems shall not be used in excess of intended loads or rated capacity whichever is less.

(6) Temporary electrical systems shall not be used for any purpose other than the intended original purpose.

(7) Regularly inspect power tools and take them out of service if they are damaged. Tools should be serviced by qualified electricians; makeshift repairs are prohibited.

6.7.4 Method Statement ~~for Temporary Electrical Installations~~

The Method Statement for temporary electrical installations (required by the Contract and JSSS 1.9 [*Contractor's Method Statements*] shall refer to the Laws of the Country and the relevant authority which supplies power to the Contractor in relation with relevant temporary electrical installations and shall show:

(1) Required Standards and voltages of electric wires and cables.

(2) Protective work for electric wires and cables.

(3) Electric diagram.

6.7.5 Responsible Personnel

(1) The Contractor shall post the name and contact information for the person in charge of managing and operating the temporary electrical installation.

(2) All other persons shall be prohibited from operating repairing or interfering with the temporary electrical installation unless otherwise instructed or approved by the HSO or person in change.

6.7.6 Inspection, Maintenance and Repair

The Contractor shall inspect the temporary electric facilities and perform all requisite maintenance, replacement and repair to ensure the continued and safe operation including the following:

(1) Daily inspection

(a) Prepare a daily inspection checklist of the temporary electric installations including the condition of associated buildings, enclosures, fences and the like;

(b) Inspect daily; and

(c) Record the inspection results.

(2) Periodical inspection

(a) Prepare periodical (weekly and monthly) inspection checklist including measurement of insulation resistance values of temporary electric installations and the operating status of protective devices against overcurrent, grounding fault, etc.;

(b) Inspect periodically; and

(c) Record the inspection results.

(3) Maintenance and repair

(a) As a result of inspection, carry any maintenance, repair or replacement if and as necessary;

(b) Stop operation of the temporary electric installations or affected parts thereof and prevent any further operation until maintenance, repair or replacement is completed; and

(c) Reinspect, the temporary electric installations or parts thereof, and after the HSO has declared same as safe for use, operation can then re-commence.

6.7.7 Safety Measures ~~During the Work~~

The Contractor shall take the following safety measures when installing, moving, removing, repairing temporary electric facilities.

(1) Cabling/Wiring

(a) Carry out cabling/wiring work so that safety distances between cabling/wiring and any other cabling/wiring, posts, gantries, other structures, buildings, enclosures Contractor's Equipment, vehicles and persons are maintained;

(b) If appropriate separation distances cannot be maintained, enclose cabling/wiring in insulated ducts, conduit or trunking;

(c) Locate cabling/wiring where it does not obstruct other works; and

(d) Always enclose cabling/wiring in insulated ducts, conduit or trunking in working areas or Operational Areas to avoid any risk of contact, damage or injury.

(2) Switchgear, Panels and Switches

(a) Enclose switchgear, panels and switches in waterproof and lockable metal enclosures to suit the environmental conditions, all of which shall be grounded; and

(b) Fuses and circuit breakers shall be suitable for their use and load capacity.

(3) Power Receiving Equipment and Transformers

(a) Power receiving equipment, transformers and the like, shall be located in securely fenced or enclosed and locked compounds, enclosures or buildings from which entry by unauthorised persons shall be prohibited;

(b) Any work in such areas shall be designated as Dangerous Work and the provisions of JSSS 2.1.5 [*Further Requirements for Dangerous Work*] shall be applied; and

(c) All such places shall be clearly indicated as dangerous no entry areas with clear and obvious signage.

(4) Grounding (earthing)

(a) All temporary electric installations shall be grounded for each part to prevent the risk of electric shock due to electrical leakage; and

(b) Grounding electrodes shall be highly conductive such as copper.

(5) Relocation and Repair Work

(a) Relocation and repair work to or any work in the vicinity of temporary electrical installations shall only be performed after the power supply has been turned off, isolation has been confirmed, confirmation that temporary protective casings have been installed over existing cables and no electricity is measured by electricity detection;

(b) When re-energising temporary electric installations during or after any relocation or repair work, the Contractor shall ascertain in advance that there will be no electric shock to any persons engaged in the relocation or repair work of temporary electrical installations or any work nearby; and

(c) When installation, relocation or repair work of temporary electric installations is completed, the facilities shall be operated only after testing and inspection of the installation by the HSO and after the HSO has declared same as safe for use.

6.8 ELECTRIC AND GAS WELDING AND CUTTING

6.8.1 General

(1) This Section contains safety requirements for electric and gas, welding and cutting.

(2) Electric and Gas welding and cutting work shall be designated as Dangerous Work and the provisions of JSSS 2.1.5 [*Further Requirements for Dangerous Work*] shall be applied.

(3) Electric and Gas welding and cutting work shall only be performed, inspected and tested by Contractor's Personnel that are qualified welders, trained and certified for such operations in accordance with JSSS 1.18 [*Proper Placement of Contractor's Personnel*] and that follow strict procedures prepared by the Contractor and specified in the Method Statement and Safety Plan.

6.8.2 Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for Electric and Gas Welding and Cutting complying with the following standards:

(1) OSHA 1926.351 [Arc welding and cutting].

(2) OSHA 1926.351 [Gas welding and cutting].

6.8.3 Electric Welding and Cutting

The Contractor shall take the following measures for the electric welding and cutting:

(1) Check measures before operation:

(a) Automatic voltage reduction device for reducing no load voltage to prevent the shock hazard, is fitted and is functioning properly;

(b) Frame of welding machine is properly grounded;

(c) The ground resistance shall be sufficiently low for the proper function of GFCI or RCD;

(d) Grounding conductor is installed properly and working;

(e) There is no damage to welding cables;

(f) There is no damage to electrode holder, insulation of ground clamp or cable connections; and

(g) Carry out all such further checks that are required by the manufacturer's official maintenance and repair manual.

If any items are found to be missing or defective, the Contractor shall prohibit use until it has been repaired or replaced and the equipment has been inspected, tested and certified as safe for use by HSO, before it can be used.

(2) Measures to be adopted during operation:

(a) Prevent stray currents by securely fixing the ground cable with a ground clamp to a suitable ground, close to the work location;

(b) Use cables of the correct type and size and never use alternatives such as tools or reinforcing bars;

(c) When not working, remove electrode from holder and turn off the welding machine;

(d) Weld only in suitable environment and climatic conditions. Stop working outdoors during rainfall and take measures to prevent the welding machine, cables and accessories from getting wet;

(e) If any worker receives an electric shock, the Contractor shall stop the work immediately, identify the cause, prohibit use of the equipment until it has been repaired or replaced and the equipment has been inspected, tested and certified as safe for use by HSO, before it can be used;

(f) Ensure that workers wear appropriate PPE including personal face protectors for welding and protective gloves as specified in JSSS 2.9 [*PPE and First Aid*]; and

(g) Instruct all workers not to look directly at the electric arc with their naked eyes.

(3) Periodical inspection of welding machines and welding equipment:

(a) Electric welding and cutting equipment shall be inspected and tested periodically in accordance with JSSS 4.2 [*Inspection, Maintenance and Repair*] and JSSS 4.3 [*Safety Requirements*] and

(b) The voltage reduction device shall be regularly inspected and tested at least once every six (6) months.

6.8.4 Gas Welding and Cutting

The Contractor shall take the following measures for gas welding and cutting:

(1) Check measures before operation:

(a) Flashback arrestor to stop flame back-up into the equipment or gas supply line is installed;

(b) There is no damage to gas cylinders, regulators, flashback arrestor, hose bands, hoses, blow pipes, tip nozzles, and other accessories and equipment;

(c) Gas cylinders, regulators and caps and other relevant accessories and equipment have been inspected periodically and certified by HSO as safe for use; and

(d) Carry out all such further checks that are required by the manufacturer's official maintenance and repair manual.

If any items are found to be missing or defective, the Contractor shall prohibit use until it has been repaired or replaced and the equipment has been inspected, tested and certified as safe for use by HSO, before it can be used.

(2) Handling of gas welding and cutting equipment

(a) Gas hoses and gas weld sets, shall not be damaged or worn to prevent gas leakage;

(b) Gas weld sets shall be turned off when not in use and shall not be left lying around;

(c) Gas pressure regulators shall not be operated during cutting or welding operation;

(d) Connections between cylinders, gas hoses and gas weld sets shall be securely tightened with appropriate connectors;

(e) When tip nozzle overheats, flashback is likely to occur, therefore interrupt continuous working, from time to time and cool the nozzle by submerging in water whilst discharging oxygen at low pressure; and

(f) When finishing or interrupting work, completely close the container valves and vent gas in regulators.

(3) Handling of gas cylinders

Workers shall be trained to handle gas cylinders so that they are aware of the following requirements:

(a) Not to place gas cylinders:

(i) Where there is insufficient ventilation;

(ii) Near to fires, flames, heat sources, electrical sparks or grinding sparks; and

(iii) Near to Dangerous Goods or Hazardous Substances or near to Hazardous Areas.

(b) Handle gas cylinders with care and do not drop, throw or mishandle;

(c) Keep cylinders cool by shading and do not expose to direct sunlight;

(d) Keep cylinders standing during storage and use;

(e) Seal cylinders when transporting;

(f) Place compressed gas cylinders upright at all times except while cylinders are actually being hoisted or carried;

(g) Not to place gas cylinders in the vicinity of lightning conductors or grounding rods for electrical equipment;

(h) Mark all gas cylinders as either full or empty and separate them from each other in storage and during use; and

(i) When there is a risk of freezing, do not place gas cylinders in wet or humid places. When valves of cylinder or regulating valves freeze, thaw them out with hot water, do not flame or direct fire.

(4) Safety measures for gas welding and cutting work:

(a) Ensure that all internal and external working areas are fully ventilated;

(b) When checking for gas leakage from the gas welding or cutting equipment, use a liquid detergent or similar, never use flames or fire;

(c) Provide adequate fire extinguishing equipment near the working place, always maintained and certified, suitably labelled, available and positioned so that it can be used immediately when necessary;

(d) Remove oil and dust adhering to the valve of gas cylinders;

(e) Ignition and digestion shall be accomplished only with oxygen supply valve closed;

(f) Ensure that workers wear appropriate PPE including personal face protectors for welding and protective gloves as specified in JSSS 2.9 [*PPE and First Aid*]; and

(g) Instruct all workers not to look directly at the weld with their naked eyes.

(5) Periodical inspection of gas welding and cutting equipment.

Gas welding and cutting equipment shall be inspected and tested periodically in accordance with JSSS 4.2 [*Inspection, Maintenance and Repair*] and JSSS 4.3 [*Safety Requirements*].

6.8.5 Fire Prevention

The Contractor shall take all necessary measures to prevent fires caused by welding and cutting works, including:

(1) When welding or cutting work is carried out on/in containers previously filled with Dangerous Goods or Hazardous Material, the containers shall be thoroughly cleaned so that they are completely free from such Dangerous Goods or Hazardous Material before starting work.

(2) When welding or cutting work is carried out at a place where there is a risk of causing fire either to adjacent buildings or to Contractor's Equipment, Goods, debris, waste or other materials, then fire prevention measures shall be adopted. This may include moving all such Contractor's Equipment, Goods, debris, waste or other materials, from the

working area and taking other protective measures.

(3) Welding or cutting work shall not be conducted near Dangerous Goods or Hazardous Substances or in or near to Hazardous Areas.

(4) A sufficient number of fire extinguishers of appropriate types shall be provided, near the working place, always maintained and certified, suitably labelled, available and positioned so that they can be used immediately when necessary.

(5) Spotter(s) shall be provided at areas where welding or cutting work is taking place when there is risk of fire by the heat transmitted or sparks of welding or cutting, getting into walls, floors, ceilings and the like.

(6) When welding, cutting, or heating work is performed on walls, floors, and ceilings, since direct penetration of sparks or heat transfer may introduce a fire hazard to an adjacent area, the same precautions mentioned in this JSSS 6.8.5 shall be taken on the opposite side as are taken on the side on which the welding work is being performed.

CHAPTER 7: EXCAVATION WORKS

7.1 GENERAL

7.1.1 Scope

(1) This Chapter specifies the safety requirements for excavation works which include:

(a) Open-cut and all other types of surface excavation;

(b) Pits, trenches, basements and all other types of structural excavation;

(c) Excavation using all methods such as manual excavation and machine excavation;

(d) Excavation by Blasting (hereinafter referred to as "Blasting Works");

(e) All associated embankment filling, backfilling and disposal; and

(f) Earthwork Support.

and which are hereinafter collectively referred to as "Excavation Works".

(2) General requirements for example for Contractor's Equipment, Temporary Works and other related works all which apply to the work in this Chapter, are included in other Chapters of JSSS.

Additional particular requirements are contained in this Chapter.

7.1.2 Monitoring ~~of Excavation Works and Surroundings~~

(1) The Contractor shall monitor the Excavation Works and surroundings, to demonstrate that the Excavation Works are performing safely, to the designed limits and for the intended purpose.

(2) For more details, refer to JSSS 2.1.7 [*Monitoring and Records*].

7.2 PARTICULAR SAFETY MEASURES

7.2.1 General

(1) The Contractor shall plan all Excavation Works so that they can be executed in a safe and methodical manner.

(2) Unless otherwise specified in the Particular Safety Specification, the Contractor shall be responsible for choosing manual or machine excavation, selecting types of Contractor's Equipment, types of Temporary Works, Earthwork Support, spoil removal, storage and handling, controlling ground and surface water, forming embankments and cuttings and the like.

(3) Sloping sides and benching to sides of excavations shall comply with OSHA 1926.652 [Requirements for protective systems, (b) Design of sloping and benching systems], dependant on the dimensional constraints of the Site and the nature of the soil, hydraulic and geological conditions.

(4) The Contractor shall be responsible for preserving the structural integrity of all excavated sides and shall provide whatever Earthwork Support may be necessary to achieve this, in accordance with the requirements of JSSS 6.2 [*Earthwork Support*].

(5) The Contractor shall execute all Excavation Works and associated filling, backfilling and Earthwork Support without weakening any ground or causing any damage to Other Properties.

The Contractor shall also ensure the safety of all persons, whilst they are working in, under or adjacent to any excavation on or outside the Site.

The Contractor shall take all necessary measures to prevent the occurrence of any such weakening or damage to Other Properties and obtain the prior consent of the Engineer to

such measures before commencing relevant parts of the Excavation Works.

(6) If loose rock, boulders, trees and the like, are positioned above working areas and where there is any risk that these may pose a danger to workers, the HSO shall prohibit workers from entering the working areas and issue appropriate instructions including for example to:

(a) Provide protective overhead safety barriers or safety nets;

(b) Carefully remove loose rocks; and

(c) Provide (or improve existing) Earthwork Support to unstable areas.

7.2.2 Safety Measures Before Commencing Excavation Works

(1) The HSO shall inspect the Excavation Works area and surrounding areas before starting work each day and after adverse climatic conditions or earthquake as described in JSSS: 2.7 [*Adverse Weather Requirements*]. The inspection shall include the following areas and items:

(a) Potentially unsafe areas where there may be any risk of landslide;

(b) Loose rock or boulders which may be at risk of falling;

(c) Cracks in the Excavation Works area and the surrounding area;

(d) Changes in ground water level, surface or any spring water; and

(e) Deleterious effect due to freezing conditions.

(2) As a consequence of such inspections if the HSO identifies any outstanding risks, the HSO shall prohibit the continuation of any affected work, take necessary corrective measures and make any necessary amendment to the Safety Plan and instruct all Contractor's Personnel associated with such affected work of any revised safety measures before work is allowed to commence and continue in order to ensure their continued safety.

(3) Install facilities such as stairs and ramps as means of access or egress from the excavation site in accordance with JSSS 6.4.3 [*Vertical Access*].

(4) Provide support or protection for the underground services appropriately in accordance with JSSS 3 [*Existing Underground, Concealed and Overhead Services*], and take measures, according to the situation, such as indicating clearly the location and precautions of the underground service and providing protective fences for the services.

(5) Prevent workers and construction equipment/transport vehicles from falling at the excavation site, in accordance with JSSS 2.3 [*Prohibition of Entry*], install all necessary entry prevention facilities including fences, temporary enclosures, warning flags, "no entry" signs and the like and placing Spotters.

(6) Take the following measures when there is a risk of danger to third parties, workers, construction equipment, etc. by the fall of excavated soil/rock into the lower parts (bottom) of the excavation site:

(a) Identify dangerous locations, install entry prevention facilities such as fences, temporary enclosures, warning signs, etc. in accordance with JSSS 2.3 [*Prohibition of Entry*]; and

(b) Install protective fences that can catch falling rocks, etc.

(7) Preventive measures against falling rocks

(a) To protect workers from the dangers of falling of loose rocks and soils from the excavated surface, remove the loose rocks, etc. and take appropriate protective measures; and

(b) When there is a risk of falling of loose rocks/soils due to the excavation, take measures such as provision of earth retaining and protective net beforehand, and prohibiting workers from entering in the excavation site.

7.2.3 Safety Measures During Excavation Works

During the Excavation Works, the Contractor shall:

(1) Not place spoil, filling or Contractor's Equipment near the vertical edge of excavated surfaces.

(2) Stop the Excavation Works where a sign of ground collapse is identified during excavation, evacuate all Contractor's Personnel, implement all necessary safety measures, prohibit Contractor's Personnel from recommencing work until all safety measures have been taken.

(3) Backfill any temporary excavation area as soon as possible after the relevant work is completed.

(4) For places where open Excavation Works are performed, maintain the necessary illuminance to perform the work safely.

7.3 MANUAL EXCAVATION WORKS

7.3.1 General

During manual Excavation Works, the Contractor shall:

(1) Not undermine any excavation under and beyond the vertical cutting face.

(2) Not excavate under existing foundations.

(3) Maintain sufficient distance between workers.

(4) When breaking or removing loose rock, pay attention to the stability of the rock and the direction of its fall.

(5) When using a lever for removing rock, select equipment that has appropriate length and strength for the work.

7.4 MECHANICAL EXCAVATION WORKS

Refer to JSSS 4 [*Contractor's Equipment*].

7.5 TRENCHES, PITS AND OTHER TYPES OF STRUCTURAL EXCAVATION

7.5.1 General

The Contractor shall provide Earthwork Support in accordance with JSSS 6.2 [*Earthwork Support*] to prevent any danger to workers due to the collapse of excavated surfaces during the excavation of trenches, pits and other types of structural excavation.

7.5.2 Safety Measures ~~During Structural Excavation~~

(1) Materials and equipment to be used for Earthwork Support shall be appropriate for the width and depth of the excavation and free from damage or defects that might impair their proper function.

(2) Workers shall not be allowed to enter any excavation until Earthwork Support is installed prior to the work commencing.

(3) Excavation to a level greater than 60cm below the planned bottom level of support when the Earthwork Support itself is not yet installed shall not be allowed.

(4) If temporary removal of individual members of the Earthwork Support is necessary, safety measures shall be taken to ensure the safety of workers, such as installing temporary members to hold the loads imposed on the system.

(5) When removing Earthwork Support, the Contractor shall not allow anyone other than the workers engaged in the removal work to enter the area and the vicinity.

(6) The Contractor shall perform backfilling of any excavation in parallel with the removal of the Earthwork Support.

7.6 BLASTING WORKS

7.6.1 Scope

(1) This Section specifies safety measures for Blasting Works generally for the removal of rock that cannot be undertaken using conventional excavation techniques.

(2) Blasting Works for tunnelling is not included in the scope of this Chapter.

7.6.2 General ~~Blasting~~ Requirements

(1) Blasting shall only be permitted to be performed by the Contractor:

(a) When it is safe to do so and when there is no reasonably identifiable risk of injury or damage being caused to persons or property within or outside the Site;

(b) Where it is not specifically prohibited by the Particular Safety Specification; and

(c) When the Contractor has received the Engineer's approval or instruction.

(2) Blasting when approved, shall only be permitted at times which have been predetermined and agreed with the Engineer and any relevant authority.

(3) The Blasting Works plan shall be described in the relevant Method Statement.

(4) This Section applies particularly where there may be any risk of injury or damage to persons and property from flying debris within or outside the Site.

7.6.3 ~~Blasting~~ Noise

~~Noise levels measured at the boundary of the Site shall not exceed a sound pressure level of 85 dBA and/or a peak sound pressure level of 110 dB.~~

Noise from blasting in the Site shall be controlled in accordance with JSSS 2.1.4 [*Noise*].

7.6.4 Compliance Standards

(1) By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Section or relevant to the subject of this Section and which are not fully covered by JSSS, the Contractor shall take necessary measures for Blasting Works complying with BS 5607: Code of Practice for the Safe Use of Explosives in the Construction Industry.

(2) The Contractor shall obtain the necessary permits, licenses or approvals for Blasting Works and the handling and storage of Explosives associated therewith. The Employer, at the request of the Contractor, shall provide such reasonable assistance to allow the Contractor to obtain properly such permits, licenses or approvals.

7.6.5 Personnel ~~for Blasting~~ ~~Works~~

(1) Further to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*], the Contractor shall assign the following personnel for Blasting Works:

(a) Explosives engineer; and

(b) Shotfirer(s).

(2) Responsibilities and requirement of personnel for Blasting Works.

(a) The Explosives engineer shall plan the Blasting Works, lead the Blasting Works at the Site and perform the safety management of the Blasting Works; and

コメントの追加 **[MJD151]:** To simplify and make headings consistent

コメントの追加 **[MJD152]:** To simplify and make headings consistent

コメントの追加 **[SS153]:** 19. (66)

コメントの追加 **[SS154]:** No. 66
The first sentence is deleted because the specification for noise in Hong Kong may be special due to works in crowded town.
NK agreed to delete it as there is no such regulation as Hong Kong.

コメントの追加 **[MJD155R154]:** No comment will change

コメントの追加 **[SS156R154]:** Confirmed.

コメントの追加 **[MJD157]:** To simplify and make headings consistent

(b) Shotfirer(s) shall perform safe handling, transportation and storage of Explosives, and perform Blasting Works and site safety management.

(3) Safety education and guidance

Further to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*], the Contractor shall ensure that the Explosives engineer and shotfirer(s) have sufficient knowledge of and are able to comply with the following:

(a) Nature of hazards associated with Blasting;

(b) Unsafe conditions and conduct in performing Blasting Works;

(c) Procedures for Blasting Works;

(d) Evacuation and return procedures for any evacuated workers and personnel;

(e) Safety measures when misfiring of Explosives occurs; and

(f) Actions for Emergency Response.

7.6.6 ~~Blasting~~ Safety Plan

コメントの追加 **[MJD158]:** To simplify and make headings consistent

The Contractor shall prepare a Blasting Safety Plan describing all required safety measures for Blasting Works in addition to the items prescribed in JSSS 1.7 [*Contractor's Safety Plans*] and including the following:

(1) Risk analysis and countermeasures.

(2) Safety measures for transportation, safekeeping, use and disposal of Explosives.

(3) Safety measures for Contractor's Personnel, Employer's Personnel and any other persons, the general public, neighbouring residents and building owners on or adjacent to the Site and who may be affected by the Blasting Works (hereinafter collectively referred to as "persons affected by the Blasting Works" in this Section).

(4) Determination of Exclusion Zone.

(5) Identification of affected areas, buildings, structures and property.

(6) Environmental and health compliance requirements including vibration, noise, fire, and the like.

(7) Environmental monitoring plan and methods to record the impact of Blasting on affected buildings, structures and property.

(8) Trial Blasting.

(9) Identification of the Explosives engineer and shotfirers to distinguish from other workers.

(10) Placement of Spotters.

(11) Method of notification of the start date and time of Blasting Works and the serving of notice immediately before commencement of Blasting Works to other persons affected by the Blasting Works.

(12) Evacuation method of all personnel from the Exclusion Zone before Blasting.

(13) Warning system at the time of Blasting.

(14) Procedures and methods for dealing with misfired Explosives (The plan for the treatment procedures for misfired Explosives shall be prepared by reference to BS 5607: Clause 10.5 Misfires).

(15) List of legal and administrative records.

7.6.7 Risk Prevention ~~of Workers and Neighbouring Residents~~

(1) Notice of Blasting

The Contractor shall notify all persons affected by the Blasting Works. of the planned schedule and start dates and times for Blasting Works. Such information shall be updated as necessary, immediately before the Blasting Works commence.

(2) Risk Prevention Measures

The Contractor shall take all necessary measures to prevent any injury or damage to all persons affected by the Blasting Works, including the following:

(a) Prohibition of overcharging with Explosives more than that specified in the Method Statement prepared based upon the trial Blasting;

(b) Prevention of scattering of flying rock and other debris;

(c) Prevention of collapse of surrounding rocks or ground areas;

(d) Demarcate the Exclusion Zone for Blasting Works and take necessary measures to prohibit any unauthorised persons from entering the Exclusion Zone by a system of signs, signals and Spotters in accordance with BS 5607: Clause 7.4.2 [Blast warning procedures] including the following:

(i) Provide audible warning sirens to warn of impending, current and completed Blasting operations; and

(ii) Place bulletin boards showing the Blasting time, siren code and other precautions at the boundary of the Dangerous Work area.

(e) Establish evacuation requirements, routes and assembly areas and inform all persons affected by the Blasting Works;

(f) Perform firing only after the Spotters have confirmed that all persons affected by the Blasting Works have been evacuated;

(g) Provide communication equipment between the shotfirer and the Spotter, maintain and test the equipment;

(h) Prohibit bringing into the Blasting areas any mobile phone that may affect adversely the electric detonator; and

(i) Unless otherwise specified in the Particular Safety Specification, perform Blasting Works only during the daytime.

7.6.8 Handling and Storage of Explosives

(1) Storage of Explosives

(a) The Explosive store to be constructed at the Site shall be a secure, substantial and fireproof building, environmentally controlled, locked, guarded and protected at all times and in accordance with the Laws of the Country;

(b) Appropriate numbers and types of personnel shall be assigned by the Contractor for safekeeping and security of the stored Explosives and any other materials;

(c) The Contractor shall maintain records of the types and quantities of all Explosives received and issued at the store, listing the date and time of receipt and issue and the names of all personnel concerned; and

(d) The Contractor shall submit the records to the Engineer when the Engineer requests.

For other storage requirements, the Contractor shall take necessary measures complying with BS 5607: Clause 9.3 [Storage].

(2) Transportation of Explosives

For transportation requirements, the Contractor shall take necessary measures complying

with BS 5607: Clause 9.4 [Transport of Explosives on Site].

(3) Quantity of Explosives at the Blasting site

(a) No Explosives shall be stored at the Blasting site;

(b) The quantity of Explosives to be transported from store to the Blasting site shall be limited to the estimated quantity of consumption for the Blasting; and

(c) Explosives not used on the day shall be returned to the Explosives store.

(4) Handling of Explosives

(a) Explosives shall be handled with extreme care ensuring that they are not hit, thrown or dropped;

(b) Containers for Explosives shall be solidly constructed from timber or non-conducting material and metals such as iron or foil must not be used on inner surfaces;

(c) Explosives and detonators shall be separately stored in lockable containers;

(d) The containers for Explosives shall protect against water ingress, impact damage; and

(e) Smoking, use of matches, lighters, flames, sparks and the like shall be prohibited in areas where Explosives are being transported, stored and handled, notice boards and warning signs shall be placed in suitable positions.

(5) Records of Blasting and Explosives

(a) The Shotfirer shall prepare daily work records showing the date and time of each Blasting operation, quantity of Explosives received, consumed, misfired and remaining, number of blast holes, charging method for the Blasting and treatment of misfired Explosives;

(b) The Explosives engineer shall check and countersign the Blasting Works records; and

(c) The Contractor shall submit the records to the Engineer when the Engineer requests.

(6) Notice to the Engineer

The Contractor shall notify the Engineer in writing as follows:

(a) Notification of delivery of Explosives to the store and from the store to the Site, shall each be given to the Engineer by no later than noon on the day preceding the scheduled date of the arrival of Explosives at the store and the delivery to the Site;

(b) Notification of intended Blasting Works shall be given to the Engineer by no later than noon on the day preceding the scheduled date of the Blasting operation; and

(c) Notification of the schedule for the following week's Blasting shall be given to the Engineer by no later than Friday morning of the preceding week.

7.6.9 Trial Blasting

The Contractor shall perform trial Blasting in accordance with the Blasting Safety Plan provided in JSSS 7.6.6 [~~*Blasting*~~ *Safety Plan*] for the following purposes, and modify the said Blasting Safety Plan according to the results of the trial Blasting:

(1) Confirm the characteristics of rock and topography at the Blasting site that will affect the Blasting operations.

(2) Confirm the suitability of the planned Blasting method, Explosives amount, and scattering prevention and other protection measures.

(3) Confirm the safety of all persons affected by the Blasting Works.

(4) Confirm that the Contractor's criteria are adequate for the purpose of JSSS 7.6.10 [*Monitoring ~~Impact of Blasting Works on Other Properties~~*].

The Contractor shall submit the trial Blasting reports with any consequent changes to the Blasting Safety Plan to the Engineer before proceeding with the Blasting Works.

7.6.10 Monitoring ~~Impact of Blasting Works on Other Properties~~

The Contractor shall comply with the requirements of JSSS 7.1.2 [*Monitoring ~~of Excavation Works and~~ ~~Surroundings~~*].

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7.6.11 Particular Safety Measures ~~for Blasting Works~~

(1) Identification of Blasting workers

Provide clear visible identification mark, uniforms or marked safety helmets to distinguish the Explosives engineer and shotfirer(s) engaged in Blasting Works from other workers.

(2) Drilling Work

(a) No drilling shall be allowed in the hole formed for previous Blasting; and

(b) If any misfired Explosives are found during the drilling operation, the drilling shall be stopped and the misfired Explosives shall be treated in accordance with the procedures planned in JSSS 7.6.6 [*~~Blasting~~ Safety Plan*] and JSSS 7.6.12 [*Measures after Blasting*], (2) [*Treatment of misfired Explosives*].

(3) Explosives Charging

(a) Drilling operations shall not be permitted during charging of Explosives;

(b) Before charging, thoroughly clean the holes and do not leave any dust or debris; and

(c) Shock and friction such as the following, which can cause accidental initiation of the charges, shall be avoided:

(i) The over-vigorous use of stemming rods to force Explosives into a shot hole;

(ii) The use of drill rods or other metal tools in a shot hole containing Explosives;

(iii) Vehicles running over Explosives and other hazards involving impact or concussion; and

For other safety measures for charging work, the Contractor shall comply with BS 5607: Clause 10 [Safety when using Explosives].

(4) Handling Detonators

(a) Measures for Blasting using electric detonators:

(i) Make sure electric detonator's leg wires shall be kept short-circuited until they are connected into the circuit for firing;

(ii) Check if shotfiring cables are not cut or damaged;

(iii) Make sure electric detonators shall be kept away from electric lighting supplies, power supplies and other electrical sources that may cause electric leakage;

(iv) Check if there are no missing or wrong wiring connections or mis-connection with previous blast wires;

(v) Make sure there are no stray electric currents;

(vi) Do not use electric detonators if there is any danger of electrical interference for example from radio-frequency radiation near radio communication facility or radar; and

(vii) Install a lightning detector near the Blasting area, stop Blasting Works when there is a risk of lightning strike, and evacuate workers to a safe place.

For other safety matters for Blasting with electric detonator, the Contractor shall comply with BS 5607: Clause 10.4.3 [*Electric detonators*].

(b) Measures for Blasting using non-electric detonators:

(i) Do not cut or damage the shock tube; and

(ii) Before firing, check the connections visually and make sure that there are no missing or previous wiring connections or wrong wiring connections.

(5) Measures in Ignition:

(a) The connection between the shotfiring apparatus and shotfiring cable shall be made just before ignition;

(b) Ignition shall be made at a safe place isolated and protected according to the degree of the blast; and

(c) The handle shall be removed from the shotfiring apparatus except when igniting.

7.6.12 Measures after Blasting

(1) Confirmation of safety of Blasting area after Blasting:

(a) No persons other than the shotfirer shall enter the Blasting site or its vicinity until the shotfirer has inspected the area and confirmed that it is safe to re-enter; and

(b) The shotfirer shall inspect the area and surrounding area of the Blasting site to check that there is no danger of falling or collapsing of ground and rocks or misfired Explosives.

(2) Treatment of misfired Explosives

If, after ignition, the loaded Explosives did not explode, or if it is difficult to confirm the explosion, the misfired Explosives shall be treated in accordance with the treatment of misfired Explosives in the Blasting Safety Plan, and BS 5607: Clause 10.5 [Misfires] including the following:

(a) Procedure of treatment of misfired Explosives;

The following treatment procedure of misfired Explosives shall be taken:

(i) Immediate remedial action;

(ii) Delayed remedial action;

(iii) Further attempt at detonation; and

(iv) Inspection to confirm complete detonation.

The details of the above actions are stipulated in succeeding (b) to (d).

(b) Immediate remedial action;

The following initial actions shall be taken by the shotfirer:

(i) Prohibit anyone other than the shotfirer and other authorised personnel from entering the Blasting site;

(ii) Entry to the Blasting site shall only be permitted after the elapsed time from the occurrence of misfire as specified in the Blasting Safety Plan;

(iii) Disconnect from the shotfiring apparatus any removable handle or key and the shotfiring cable, and short-circuit or ground the bare wires together;

(iv) When safe to do so, examine the cable and connections for any defects, and remedy any defect so found;

(v) Make a further attempt to fire the shot;

(vi) Report to the Explosives engineer for further instructions;

(vii) Do not collect any exposed Explosives before further action is taken;

(viii) Do not allow drilling or any other work to be carried out in the vicinity of the misfire until the misfire has been remedied, unless this is directly involved in the treatment of the misfire; and

(ix) Other actions specified in BS 5607: Clause 10.5.4.1 [Initial actions].

After the initial actions, the following initial remedial actions shall be taken by the shotfirer:

(i) When safe to do so, examine the cable and connections for any defects, and remedy any defect so found; and

(ii) Make a further attempt to fire the shot.

(c) Delayed remedial action and further attempt at detonation:

(i) After the immediate remedial action, when necessary, the delayed remedial action and further attempt at detonation shall be taken.

(ii) The delayed remedial action and further attempt at detonation should be safe removal of the stemming to allow re-priming, or drilling and firing relieving holes placed so as to work away the rock surrounding the stemming and charge of the misfired shot holes.

(iii) The action and attempt shall be taken in accordance with the Blasting Safety Plan, and BS 5607: Clauses 10.5.4.2 [Written instructions], 10.5.4.3 [Attempts to re-fire], 10.5.4.4 [Drilling relieving holes] and 10.5.5 [Drilling relieving holes].

(d) Inspection to confirm complete detonation;

After further attempt at detonation, inspection shall be made to confirm complete detonation. If any non or partial detonation is found, remedial measures shall be taken according to Figure-1 Procedure to remedy misfires in BS 5607: Clause 10.5.1 [General].

(e) Take appropriate steps to prevent theft of Explosives and detonators or their initiation by an unauthorised person; and

(f) The Contractor shall promptly notify the Engineer of any misfire event and the remedial actions.

CHAPTER 8: FOUNDATION PILING WORKS

8.1 GENERAL

8.1.1 Scope

(1) This Chapter specifies the safety requirements for piling works which include:

(a) Driven Piling;

(b) Cast-in-place Piling; and

(c) Hand-dug Piling

and which are hereinafter collectively referred to as "Foundation Piling Works".

(2) General requirements for Contractor's Equipment, Temporary Works and other related works all which apply to the work in this Chapter, are included in other Chapters of JSSS.

Additional particular requirements are contained in this Chapter.

8.2 PARTICULAR SAFETY MEASURES

8.2.1 General

(1) Foundation Piling Works and all operations connected therewith shall be designated as Dangerous Work and the Contractor shall enclose the working area with temporary fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry*].

(2) Unless otherwise specified in the Contract, the Contractor shall be responsible for selecting methods of working and types of Contractor's Equipment and Temporary Works suitable for the purpose in conformity with GC 4.10 [*Site Data*].

(3) In accordance with JSSS 6.2 [*Earthwork Support*] the Contractor shall be responsible for maintaining the structural integrity of the sides of all excavated or drilled pile excavations and shall provide whatever temporary or permanent Earthwork Support that may be necessary to achieve this.

(4) The Contractor shall execute all Piling Works without weakening any ground or causing any damage to Other Properties.

(5) The Contractor shall also ensure the safety of all persons, whilst they are working in, under or adjacent to any piling excavation on or outside the Site.

(6) The Contractor shall take all necessary measures to prevent the occurrence of any such weakening or damage to Other Properties and obtain the prior consent of the Engineer to such measures before commencing relevant parts of the Foundation Piling Works.

Such measures shall include the provision of permanent or temporary supports and reinforcing of foundations, structures, buildings, roads or paved areas or the like, either on or adjacent to the Site.

8.2.2 Safety Measures Before Commencement

The Contractor shall plan all Foundation Piling Works before commencement so that they are executed in a safe and methodical manner. The safety measures before commencement of the Works shall be as follows:

(1) The HSO shall inspect the Foundation Piling Works' working area and surrounding areas and ensure that all of the following is acceptable before allowing the Foundation Piling Works to commence:

(a) The ground is level and capable of supporting the loading of the Contractor's Equipment including any dynamic effect of the Foundation Piling Works and the load of any materials to be placed thereon;

(b) The area is clear of any obstructions; and

(c) The areas are properly drained and free from standing water.

If necessary, the Contractor shall improve the ground by stabilising, cleaning, draining, providing paving and/or placing steel decking and temporary piling and the like to provide a suitable, clean, dry and safe working area without causing any risk to the stability of Contractor's Equipment or materials.

8.2.3 Safety Measures for Transportation on Site - Appropriate Equipment and Vehicle

Piles and pile casings, liners, reinforcement cages and the like shall not be transported or relocated by use of pile driving or drilling machines. In all cases the Contractor shall use cranes accompanied or where necessary, trucks and flatbed trailers for the transportation or relocation.

8.2.4 Safety Measures for Driven Piling

The Contractor shall:

(1) Select correct rigging method and appropriate Rigging Equipment to suit the characteristics of the lifting or pile driving machine and the piles, so that piles are mishandled or dropped.

(2) Keep workers other than those directly engaged in the driving operations away from the direct working location when driving operations are taking place.

(3) Provide a lifeline to fix PFAS on the lead when the worker works on the lead of pile driving machine in addition to the fall prevention measures stipulated in JSSS 2.5 [*Fall Prevention*].

8.2.5 Safety Measures for Cast-in-place Piling

When any Cast-in-place Piling Works are adopted, the Contractor shall take appropriate safety measures taking account of features of different methods of work, in particular:

(1) Pile Excavation Works using All-Casing Piling Method:

(a) Keep workers other than those directly engaged in the piling operations away from the pile excavation machine while installing and removing the casing and operating the drop hammer grab. Before any worker is allowed to access the casing or equipment whilst the hammer grab is being operated, ensure that the hammer grab is secured in the casing; and

(b) When any worker needs to enter the casing, confirm that there is no danger in accordance with JSSS 2.1.5 [*Further Requirements for Dangerous Work*].

(2) Pile Excavation Works for Reverse Circulation Bored Piling Method:

(a) When adding or removing drill rods, ensure that a Spotter is present to signal the operator of the drilling machine so that the hands and fingers of workers do not get caught in the work;

(b) Maintain the water level and concentration level of slurry (bentonite solution) in the drilled hole as planned in the Method Statement and prepare for addition or discharge of slurry, consequent to any fluctuation; and

(c) When providing a mud creation pit or a mud discharge pit, take measures to prevent workers from falling into such pits by providing barriers and signage.

(3) Pile Excavation Works for Auger Piling Method:

(a) To prevent overturn of drilling or auger equipment, consider the weight of excavated material in the drilling bucket or on the auger during operation; and

(b) Keep workers other than those directly engaged in the drilling works, away from the drill or auger to prevent injury through splashing or falling of mud or earth or

through contact with drill or auger.

(4) Placement of Concrete

(a) Reinforcement cages shall be designed, manufactured and hoisted into place so that they do not deform;

(b) Provide secure rigging slings and welded metal fixings to ensure that reinforcement cages are secure and do not slip or drop off the Hoisting Equipment;

(c) Tremie pipes shall be treated in the same manner so that they are secure and do not slip or drop off the Hoisting Equipment;

(d) Provide secure Rigging Equipment and operate hoisting to ensure that reinforcement cages and tremie pipes do not slip or drop off from the Hoisting Equipment in accordance with the Method Statement and Safety Plan; and

(e) When handling reinforcement cages and tremie pipes, ensure that a Spotter is present to signal the operator of the machine so that the hands and fingers of workers do not get caught in the work.

8.2.6 Safety Measures for Hand-dug Piling

Unless otherwise specified in the Particular Safety Specification, the Contractor shall comply with the requirements of the following (1) to (3):

(1) Hand-dug Piling shall not be adopted by the Contractor in ground with unfavourable conditions such as:

(a) High ground water levels;

(b) Weak geological structure including the possible presence of voids or caverns;

(c) Possible existence of Hazardous Substances;

(d) Containing loose fill in depths exceeding 10 m;

(e) In areas with history of deep-seated ground movement;

(f) Close proximity to water or sewage tunnels; and

(g) Close proximity to shallow foundations.

(2) Hand-dug Piling may for example be adopted by the Contractor in the following situations where there are no unfavourable conditions:

(a) Steeply-sloping sites with pile depths less than 25 m in depth in soil;

(b) Sites with difficult access or insufficient working room where it may be impractical or unsafe to use mechanical plant; and

(c) Where noise, vibration or damage may be caused by driven or bored piling and which must be avoided.

(3) Hand-dug Piling shall:

(a) Be not less than 2 m diameter;

(b) Be not more than 25m deep; and

(c) Have continuous shaft lining.

(4) Access/Exit Facilities

The Contractor shall:

(a) Provide safe and efficient access, egress and emergency exit facilities in the shaft for workers;

(b) Provide vertical ladders, securely anchored to framework or shaft lining and complete with a ladder safety system;

(c) Provide a landing rest platform every 5 m, when the length of any ladder exceeds 10 m;

(d) Ensure that the upper end of vertical ladders projects at least 1m above the ground and any landing rest platforms;

(e) Provide appropriate and adequate pumps to remove all water from the base of the shafts; and

(f) Take measures to prevent any accidents involving workers with the spoil removal containers and any other equipment particularly throughout the bucket hoisting and descending operations.

(5) Ladder Safety System

(a) A ladder safety system shall be provided to eliminate the risk of injury to any worker falling off the ladder; and

(b) The ladder safety system shall comprise a carrier, safety sleeve, lanyard, connectors, and body harness and all workers shall be trained in its use.

(6) Communication and Signalling Measures

(a) Signals for delivering materials and equipment or discharging excavated materials to and down or from the shaft shall be determined in advance and all workers shall be trained in their use;

(b) Signals and evacuation methods during emergencies shall also be determined in advance and all workers shall be trained in their use with regular evacuation training; and

(c) Where considered necessary by the HSO handheld radios shall be provided to the Operation Leader working at the base of the shaft and a Spotter at the ground level for all communications.

(7) Environmental Measures

(a) Ensure a continuous, adequate and safe air supply to workers located at the bottom of the shaft;

(b) Provide monitoring equipment, set up alarms and evacuate workers if air quality deteriorates and keep records in accordance with JSSS 2.1. [*Work Environment*]; and

(c) Provide adequate temporary lighting.

(8) Measures before Commencing the Works

Check the condition of the excavated ground surface in the shaft and whether there is any abnormality in the shaft lining.

(9) Measures during Execution of the Works

(a) When workers are in the shaft, assign a Spotter at ground level and located within direct view at the upper edge of the shaft;

(b) Minimise the depth of each stage of excavation;

(c) Avoid introducing new teams of workers or changing over teams until each stage of excavation is completed and temporary support or shaft lining has been installed;

(d) Provide immediate temporary support for the excavated faces prior to casting the

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liner;

(e) Providing reinforcement to the concrete liner;

(f) Providing drainage to each stage of excavation with relief wells, sumps and pumping as appropriate;

(g) Stop the work and evacuate workers when abnormal water inflow occurs in the shaft and resume work only after taking countermeasures and confirming the safety of the Site and the effectiveness of the measures;

(h) Pay constant attention to any changes in soil types, properties, etc. and if any abnormality is identified at the excavated surface during work or in the shaft lining, immediately stop the work, evacuate workers and take appropriate remedial measures, resume the work only after confirming that there is no further risk; and

(i) Ensure nothing is dropped into the shaft that may injure workers.

8.2.7 Monitoring ~~Impact of Foundation Piling Works on Other Properties~~

The Contractor shall comply with the requirements JSSS 2.1.7 [*Monitoring and Records*].

CHAPTER 9: CONCRETE WORKS

9.1 GENERAL

9.1.1 Scope

(1) This Chapter specifies the safety requirements for concrete works which include:

(a) Cast-in place (poured or pumped) concrete;

(b) Reinforcement (reinforcing bar and fabric reinforcement);

(c) Formwork (including associated Falsework);

and which are hereinafter collectively referred to as "Concrete Works".

(2) General safety requirements, covering for example Contractor's Equipment including stone crushing plants and screening equipment, concrete batching plants, Temporary Works and other related matters are described in other Chapters of JSSS.

Additional particular requirements are contained in this Chapter.

9.1.2 Safety Plan and Instructions to Workers

Prepare a Safety Plan describing the safety requirements for Concrete Works and inform all workers engaged in the Concrete Works of the content and requirements. The Safety Plan shall pay due care to the workers' health matters (e.g. back injury) in relation to handling of reinforcement, Formwork panels or other heavy items, and include necessary preventive measures (e.g. using appropriate Contractor's Equipment, assigning sufficient number of workers).

9.2 PARTICULAR SAFETY MEASURES

The following safety requirements are additional to the general requirements described in other Chapters.

9.2.1 Safety Measures at Planning Stage

(1) The Contractor shall plan all Concrete Works so that they are executed in a safe and methodical manner.

(2) The Contractor shall plan the method of placing cast-in-place concrete and carry out the design and construction of Formwork and Falsework to take account of uneven and excessive impact force and different or asymmetrical loads, thicknesses and pressures in certain areas during concrete placement to avoid deformation beyond allowable tolerances specified in the Contract, any damage or collapse of Formwork and Falsework and show all details in the Method Statement and Safety Plan.

(3) The Contractor shall provide PPE such as rubber gloves, face masks and goggles to the workers when spraying concrete form release agents to prevent chemical injury, and where there is a possibility that release agent may splash on the third parties, take measures such as establishing exclusion zone with temporary barriers and locate Spotters to prevent those persons from entering the area.

9.2.2 Safety Measures for Placement

The Contractor shall:

(1) Designate concrete placement works (including all pumping and hoisting of concrete) as Dangerous Work, enclose the immediate working area with temporary signs and fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry*].

(2) Inspect all reinforcement, Formwork and Falsework before and during concrete placement. If any abnormality is discovered, stop the placement works and evacuate the

workers immediately, carry out repairs and reinspect before resuming.

(3) Place the concrete in accordance with the Method Statement and avoid uneven and excessive impact force and different or asymmetrical thicknesses and pressures in certain areas during concrete placement Additional materials shall be stored at the concrete placing site for use to reinforce Falsework in case of occurrence of their local deformation.

9.2.3 Safety Measures for Placement by Pumping

The Contractor shall take the following safety measures for delivery of cast-in-place concrete with the use of concrete pumps:

(1) Inspect the condition of concrete pump delivery pipes, end hoses and all connections, ensure that they are free from defects and blockage, check that all joints and connections are secure and free from leakage before and during concrete placement works.

(2) Ensure that all delivery pipes, end hoses and other system components are all correctly pressure rated and capable of withstanding the maximum pump pressure.

(3) Maintain a safe separation distance between the delivery pipe, end hose and boom and any existing Overhead Services as required by JSSS 3 [*Existing Underground, Concealed and Overhead Services*], Table 3.2.1: Safe Separation Distances.

(4) Maintain a safe separation distance from any obstructions (Contractor's Equipment, buildings, etc.) and avoid any risk of hitting or touching any obstructions with the pumping equipment, delivery pipes, end hoses or boom.

(5) Check the ground condition, ensure a firm, stable and horizontal working base at all times and position pumping equipment and ready-mixed concrete trucks at a safe distance from the edge of any excavations, drop or slope to protect against any slippage or fall of equipment and ready-mixed concrete trucks or collapse of ground.

(6) Fully extend outriggers and ensure stability of pumping equipment and ready-mixed concrete trucks at all times.

(7) Arrange proper communications and signals before starting the placement between workers, Spotters and operators of equipment and ready-mixed concrete trucks and ensure there is a Spotter at the point of placement.

(8) Never allow workers to stand between ready-mixed concrete trucks and pumps when ready-mixed concrete trucks are reversing.

(9) Ensure that workers are out of the path of the boom when moving the boom.

(10) If a blockage or clogging occurs inside the pipeline during the pour, stop pumping immediately and instruct workers to move to a safe position before attempting to remove the blockage or clogging. The pipeline shall be opened after releasing the pressure inside in accordance with the predetermined procedure.

(11) Ensure that hoppers and chutes are securely fixed and that workers are aware of the method of operation and safe use.

(12) Ensure that the delivery pipe and hose at the end of the concreting pump booms are securely connected so that they do not fall or become detached.

(13) Prohibit workers from working on the hopper screen of the concrete pump, remove obstructions and foreign materials in the hopper only after stopping the agitating blade and applying lockout/tagout procedures.

(14) Prohibit workers from entering in front of and below the outlet of concrete pump delivery pipes and end hoses to prevent workers being struck by pipes or flailing hoses.

9.2.4 Safety Measures for Ready-Mixed Concrete Trucks

The Contractor shall take the following measures for the ready-mixed concrete trucks in the transportation and delivery of cast-in-place concrete.

(1) Ensure that drivers are aware of and take due account of the heavy load and high centre of gravity of loaded ready-mixed concrete trucks during delivery and discharge to maintain safety and prevent overturning.

(2) Ensure that workers do not come into contact with and/or become entangled with the rotating drum and other moving parts of ready-mixed concrete trucks and that they are prevented from looking into the drum.

9.2.5 Safety Measures for Use of Concrete Buckets

The Contractor shall take the following measures when using concrete buckets for hoisting and placement of cast-in-place concrete:

(1) Comply with JSSS 5.2.5 [*General Safety Measures ~~for Hoisting~~ ~~Operations~~*] for selection of proper Hoisting Equipment and Rigging Equipment, arrangement of proper communication tools, signals and placement of Spotters.

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(2) Ensure that the movable gate is locked before hoisting and is only operated by a skilled worker when it is opened for discharge.

(3) Take measures to stabilise the bucket during hoisting and prevent any uncontrolled swinging. Prohibit workers from pushing and pulling bracket except for minor adjustment of location of the bucket for discharging concrete.

(4) Prevent any persons or workers from entering the places below bucket.

(5) Discharge the concrete slowly and in a controlled manner to prevent the bucket from rebounding after discharge.

9.2.6 Safety Measures for Use of Concrete Vibrators

The Contractor shall take the following measures when using concrete vibrators for compacting of cast-in-place concrete:

(1) Take all necessary measures to prevent electric shock, complying with JSSS 4.3.12 [*Additional Requirements for Electric Powered Equipment*].

(2) To prevent vibration injury to workers, provide anti-vibration gloves and ensure that they are properly used.

9.3 REINFORCEMENT

9.3.1 Safety Measures at Planning Stage

The Contractor shall:

(1) Prepare a Safety Plan, Method Statement and fixing and placing drawings of reinforcement describing the method of cutting, bending and fixing and showing the types and positioning of supports, ties and bracing necessary to support and rigidly secure the reinforcement and to prevent any movement or collapse.

(2) Inform all relevant workers of the content of the Safety Plan, Method Statement and assembly drawings.

9.3.2 Safety Measures at Cutting, Bending, Transporting, Fixing and Placing Stage

The Contractor shall take the following measures during cutting, bending, transporting, fixing and placing of reinforcement:

(1) Cutting and Bending:

(a) Designate the work as Dangerous Work, enclose the immediate working area with

temporary signs and fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry*];

(b) Maintain the working area in a safe, organised, uncluttered and clean condition at all times, avoid excessive storage by retaining sufficient quantities of reinforcement for immediate use, locate equipment in known positions, prevent any fall or dropping of material, equipment and tools, remove offcuts to a separate area and ensure the area is safe and that the risk of workers falling or tripping is avoided; and

(c) Maintain stored reinforcement material in a safe and secure manner and prevent collapse or fall by providing adequate restraints.

(2) Transporting:

(a) Ensure that Scaffolding and any other temporary structures on which reinforcement is to be temporarily placed is capable of supporting the load, ensure that the load is distributed safely and that it does not cause any obstruction to the passage of other workers;

(b) Ensure that reinforcing bar is lifted and suspended horizontally to prevent any slippage during Hoisting Operations and also that it is bundled safely and securely tied to prevent any reinforcing bars from sliding out;

In principle, hoist the bundle of reinforcing bars, keeping them horizontal and maintaining the balance by using two rigging slings; and

(c) When transporting to the working location use flatbed trailers or truck, ensure that the trailer or truck is of sufficient length to avoid any overhang of reinforcing bars and provide appropriate warning signs and lighting on reinforcing bars if necessary in accordance with the local regulations to avoid collision with other vehicles, persons and workers.

(3) Fixing and Placing:

(a) Prepare proper temporary access to and support for fixing and placing reinforcement in position;

(b) Prevent any risk of fall and also any distortion or weakening of reinforcement by prohibiting workers from standing, walking or climbing on such reinforcement and where necessary provide safe temporary boarded walkways for workers use;

(c) Ensure that fixing and placing is in exact accordance with the fixing and placing drawings and that the correct types and positioning of supports, ties and bracing is maintained to properly support and rigidly secure the reinforcement and prevent undue movement or collapse;

(d) When there is any danger of reinforcement falling or collapsing during fixing and placing in wind and rain, stop the fixing and placing work. After conditions improve, inspect the reinforcement and take measures to correct any abnormality before continuing with fixing and placing;

(e) Prohibit working concurrently at levels where any other worker is working underneath in accordance with JSSS 2.6.7 [*Working Above or Below Other Persons*]; and

(f) Provide temporary protection caps to exposed ends of reinforcing bars to prevent injury to workers.

9.4 FORMWORK (INCLUDING FALSEWORK)

9.4.1 General

Any reference to "Formwork" in this Section shall also be deemed to include reference to the associated Falsework for that Formwork.

9.4.2 Safety Measures at Planning Stage

The Contractor shall:

(1) Design the Formwork and manage its provision, use and removal in accordance with JSSS 1.37 [*Design and Management of Temporary Works*] and the further requirements of JSSS 6.1 [*General Requirements of Temporary Works*].

(2) Prepare a Safety Plan, Method Statement and design drawings of Formwork describing the method of fabrication, assembly, erection and removal and showing details of all materials, components, types and positioning of supports, ties and bracing necessary to create a rigid and secure temporary support structure for the concrete, reinforcement and workers and to prevent any movement or collapse.

(3) Inform all relevant workers of the content of the Safety Plan, Method Statement and design drawings.

9.4.3 Safety Measures at Fabrication and Assembly Stage

The Contractor shall take the following measures during fabricating, transporting and assembling of Formwork:

(1) Designate the work as Dangerous Work, enclose the immediate working area with temporary signs and fences or barriers, prevent entry of any unauthorised personnel and take all such further measures that are required by JSSS 2.3 [*Prohibition of Entry*].

(2) Maintain the working area and storage area in a safe, organised, uncluttered and clean condition at all times, avoid excessive storage by retaining sufficient quantities of material for immediate use, locate equipment in predetermined places, prevent any fall or dropping of material, equipment and tools, remove offcuts to a designated area.

(3) Ensure that the Formwork is free from cracks, defects and deformation.

(4) Ensure that Scaffolding and any other temporary structures on which Formwork is to be temporarily placed is capable of supporting the load, that the load is distributed evenly and within the allowable stress of Formwork.

(5) During any Hoisting Operations, ensure that all necessary measures are taken to prevent Formwork being affected by wind and that any risk of collision and consequent injury and damage is avoided.

9.4.4 Safety Measures During Dismantling and Removal Stage

(1) Ensure that Formwork is only dismantled when so instructed or approved in writing by the HSO.

(2) After dismantling, stack Formwork panels horizontally to avoid overturning due to strong wind or applied loadings; and

(3) Any protruding nails, wires, projecting members and splinters shall be removed or bent flat to avoid injury to workers and other persons.

CHAPTER 10: DIVING WORKS

10.1 GENERAL

10.1.1 Scope

This Chapter specifies the safety requirements for Diving Operations which shall include Surface-Supplied Air Diving and SCUBA Diving and which are hereinafter collectively referred to as “Diving Works”.

Saturation diving and mixed-gas diving are not included.

10.1.2 Compliance Standards

By reference to JSSS 1.4 [*Compliance with JSSS and Other Regulations*], for any items in this Chapter or relevant to the subject of this Chapter and which are not fully covered by JSSS, the Contractor shall take necessary measures for Diving Works complying with OSHA 1910 Subpart T [Commercial Diving Operations] for Surface-Supplied Air Diving and SCUBA Diving (excluding saturation and mixed-gas diving).

10.2 SAFETY PLANS

10.2.1 General Requirements ~~for the Safety Plans for Diving Works~~

The Contractor shall prepare the following Safety Plans for the Diving Works in compliance with and in addition to the requirements of with JSSS 1.7 [*Contractor's Safety Plans*].

(1) Bid Stage Safety Plan for Diving Works.

(2) Baseline Safety Plan for Diving Works.

(3) Particular Safety Plans for Diving Works.

(4) Pre-dive Safety Plan for Diving Operations.

10.2.2 Bid Stage Safety Plan ~~for Diving Works~~

In compliance with JSSS 1.7.6 [*Bid Stage Safety Plan*], the Bid Stage Safety Plan for Diving Works shall include an outline plan indicating the Contractor's operational procedures for each diving mode to be used in the Works This shall be in sufficient detail to give an understanding of the Contractor's intentions regarding the diving safety procedures that the Contractor intends to implement.

10.2.3 Baseline Safety Plan ~~for Diving Works~~

(1) In compliance with JSSS 1.7.7 [*Baseline Safety Plan*], the Baseline Safety Plan for Diving Works shall be a development of the Bid Stage Safety Plan and shall include detailed safety procedures and standard checklists to apply to all Diving Operations, equipment procedures, and emergency procedures (at a minimum covering fire, equipment malfunction or failure, adverse environmental conditions and medical illness and injury).

(2) The HSO shall internally review the Baseline Safety Plan to determine if it is correct and compliant with the requirements of OSHA and JSSS. ~~The Contractor shall ensure that the Baseline Safety Plan shall be correct and compliant with the requirements of OSHA and JSSS~~.

(3) A copy of the Baseline Safety Plan together with a copy of the OSHA standard and the Contractor's policies for implementing the requirements of OSHA (from the Bid Stage Plan) shall be made available at the dive location to each Dive Team member and explained to the Dive Team by the HSO and DPIC.

10.2.4 Particular Safety Plans ~~for Diving Works~~

(1) In compliance with JSSS 1.7.8 [*Particular Safety Plans*], the Particular Safety Plans shall contain all further information specific to Diving Works not covered by the foregoing

コメントの追加 **[SS163]:** No. 69
JICA commented this proposal is tentatively accepted.
JICA will consult these plans with specialist company for diving works.
NK will leave them as they are.

コメントの追加 **[MJD164R163]:** No comment will await any future instructions.

コメントの追加 **[SS165R163]:** We will not do any in this Chapter and submit this Chapter with revision as commented.

コメントの追加 **[MJD166R163]:** We have changed headings as instructed

コメントの追加 **[SS167]:** To MD please add “internally” to your original sentence for final version.

コメントの追加 **[SS168]:** 追加(69A)

コメントの追加 **[SS169]:** JICA commented (2) shall be deleted because it is strange for the HSO to review BSP.
NK will delete (2).

コメントの追加 **[MJD170R169]:** Please note that this is a requirement of OSHA D. 29 CFR 1910.420 *Safe practices manual*.
If this review by HSO (CSHO) is deleted this may not now be compliant with OSHA.

Please advise

コメントの追加 **[SS171R169]:** JICA commented because review of BSP may be made by the Engineer, so the HSO is not position to review. He should prepare and submit BSP to the Engineer.
Can we revise this as right to meet the requirement of OSHA?

コメントの追加 **[MJD172R169]:** I suggest that whilst the Engineer “may” review, the HSO must review. I have inserted your sentence (adding “the”) but I do not agree that it is correct, I suggest that it should be the HSO.

コメントの追加 **[SS173]:** 20. (70)

Bid Stage and Baseline Safety Plans together with all supplemental information obtained during pre-dive planning and assessment, as necessary to comply with the requirements of OSHA in particular OSHA 1910.421 [Pre-dive procedures] for all Diving Works.

(2) The Particular Safety Plans shall be prepared for the basis of the Pre-dive Safety Plan for each Diving Operation to be carried out in any one (1) day.

(3) ~~The Particular Safety Plans shall include the following for example, however, the plan be modified to be indicative for the use of the Pre-dive Safety Plan:~~ The Particular Safety Plans shall include the following example items which may be later modified by the Pre-dive Safety Plan:

(a) Safety procedures and checklists for each Diving Operation;

(b) Name of each Dive Team member, buddy diver assignments, individual work assignment and responsibility and confirmation from the DPIC that they each comply with all diving health and safety requirements and are therefore approved to work on the Diving Operation;

(c) The planned dive profile for each Diver showing their maximum bottom time and ascent rate with decompression stages and times, taking account of repetitive dives;

(d) Description of all diving equipment, diving gases and consumables, PPE, procedures for their use and signed checklists to confirm compliance;

(e) Description of the workboat and workboat facilities, together with information on the location of the workboat in relation to the dive site, and procedures for the use and operation of the workboat during Diving Operations, any surface hazards and any restriction in operation due to surface traffic conditions;

(f) Description of all other Contractor's Equipment, tools and consumables for the assigned work tasks, procedures for their use and checklists;

(g) The arrangements at the Site of the Diving Works for emergency recompression/decompression and the safe transport of any Diver for treatment;

(h) The climatic, river, lake, marine, natural and physical conditions that are likely to be encountered during any Diving Operation and the procedures for commencement, continuation or stopping of any Diving Operation following any change in these conditions in accordance with JSSS 10.3 [*Climatic, Marine, Natural and Physical Conditions*];

(i) Communication systems and procedures for communications:

(i) Between Divers;

(ii) Between Divers and the workboat; and

(iii) Between the work boat and the relevant authorities.

(j) Any further information and instructions to be given to the Divers, support assistants and other workers related with the Diving Operations and the working methods and safety measures.

(4) The Particular Safety Plan shall be prepared by the DPIC or another Diver that has the qualification, experience and capability deemed sufficient by the HSO.

(5) The Particular Safety Plan shall be internally reviewed and approved by the HSO, and submitted to the Engineer for his review..

(6) The content of the Particular-Safety Plan shall be explained to all Dive Team members during the briefing by the HSO or DPIC in accordance with OSHA 1910.421(f) [Employee briefing].

コメントの追加 [SS174]: JICA asked if "of" is necessary before OSHA.

コメントの追加 [MJD175R174]: Yes, "of" is necessary. OSHA is defined as "the technical requirements of …." therefore it is correct.

コメントの追加 [SS176R174]: Confirmed.

コメントの追加 [SS177]: No. 70
JICA commented (3) cannot understandable, so request to change it. If this states the relation with Pre-dive plan, it should be modified, or delete it because there is stipulation in 10.2.5 (2).
NK: Please review JICA comment and modifythis sentence.

コメントの追加 [MJD178R177]: Suggest as follows:

The Particular Safety Plans shall include the following example items which may be later modified by the Pre-dive Safety Plan:

Please confirm

コメントの追加 [SS179R177]: Yes, we will replace them with your proposed sentence.

コメントの追加 [SS180]: JICA commented (4) and (5) should be modifies as requested in 1.7. The PSS is the document to be prepared by the HSO getting assistance of DPCI and divers and submitted for the Engineer's review.
NK: Please modify (4) and (5) following JICA's comment above.

コメントの追加 [MJD181R180]: For diving works, I suggest that this is different to JSSS 1.7 and cannot always be the case. This plan must be prepared by the DPIC or other designated, qualified and experienced expert diver which the HSO is not and neither is the Engineer. Most of this information will in any case already be included in the Baseline Safety Plan.

This is basically a requirement of OSHA. Please refer to "E. 29 CFR 1910.421 [*Pre-dive procedures]*. It could be reviewed by the HSO so that he is aware of it but it will generally not be changed by him. It can also be sent to the Engineer for his information if there is time JICA and it may be reviewed by him but probably without comment. As suggested before, the Engineer could be asked to witness the employee briefing just before each dive to ensure that all items are properly explained and that the Baseline Safety Plan and Particular Safety Plan are complied with. If required a suitable clause can be added after (6) as follows: below.

... [2]

コメントの追加 [SS182R180]: JICA does not want the HSO take actions of review and approval of PSP. I suggest to add "internally" and 2subimmted to the Engineer for his review" as left.

... [1]

コメントの追加 [MJD183R180]: No comment will change as requested

(7) If considered necessary by either the HSO or DPIC, individual Dive Team members shall be given additional training and testing.

(8) A copy of the Particular Safety Plan shall be made available at the dive location to each Dive Team member.

10.2.5 Pre-dive Safety Plan for Diving Operations

The Contractor shall prepare a Pre-dive Safety Plan for each Diving Operation as follows:

(1) To contain information specific to the Diving Operation to be carried out in a day to secure safety of Diving Operation, in accordance with OSHA 1910.421 [Pre-dive procedures].

(2) To describe the items given in the above JSSS 10.2.4 (1) ~~(3)~~ specifically for the particular Diving Operation.

(3) To be used for briefing the Dive team.

(4) To be prepared by DPIC or another Diver that has qualification, experience and capability deemed sufficient by the HSO.

(5) To be submitted to the HSO by the day preceding the scheduled date of the Diving Operation for his review and approval.

(6) To be available at the dive location to each Dive Team member.

10.3 CLIMATIC, MARINE, NATURAL AND PHYSICAL CONDITIONS

10.3.1 General

(1) The Contractor shall compile relevant information from statistical records, recent and current forecasts of conditions which may be encountered in support of the Particular Safety Plan and shall establish criteria and controls for commencement, continuation or stopping of any Diving Operation due to such conditions.

(2) The Baseline Safety Plan shall describe how such criteria shall be applied and how such controls shall be implemented.

10.3.2 Information on Conditions ~~for Particular Safety Plans and Pre-dive Safety Plans~~

(1) Where necessary, the Contractor shall make exploratory dives to survey and establish all relevant conditions at the dive site such that all Pre-dive Safety Plans are based upon the best and most timely available information.

(2) Relevant information shall also be obtained by the Contractor from all available sources and shall include for example the following:

(a) Climatic information and forecasting at the diving location:

(i) Wind speed and direction;

(ii) Air temperature;

(iii) Surface visibility, fog, sea mist;

(iv) Likelihood and intensity of electrical storm; and

(v) Weather forecasting.

(b) Water/Marine Conditions:

(i) Sea state; wave height and direction;

(ii) Height and time of tides;

(iii) Water depths;

(iv) Water Temperatures;

コメントの追加 **[SS184]:** 21. (72)

コメントの追加 **[SS185]:** (1)is to be (3).

コメントの追加 **[MJD186R185]:** I think it is should remain as (1) as this requires full compliance with OSHA and (3) includes examples only.

Please advise

コメントの追加 **[SS187R185]:** We leave (1) as it is.

コメントの追加 **[SS188]:** 22. (73)

コメントの追加 **[SS189]:** No. 73
JICA requested to add the following sentence we discussed to 1.7.7(4).
NK agreed and added it.

1.7.7(4)
If, at any time, the Engineer gives notice to the Contractor that the Baseline Safety Plan fails (to the extent stated) to comply with the Contract or to be consistent with the Contractor's stated intentions, and that cannot be corrected by the issue of a Particular Safety Plan, the Contractor shall submit a revised Baseline Safety Plan to the Engineer in accordance with this Clause.

コメントの追加 **[MJD190R189]:** No comment will change but please advise if you want this to be added here also?

コメントの追加 **[SS191R189]:** Only specify at 1.7.7(4) and not here.

(v) Water currents, direction and speed;

(vi) Visibility at depths; and

(vii) Water level variation in rivers or lakes during flood periods.

(c) Physical Conditions:

(i) Underwater cables and pipes;

(ii) Wreckage and other artificial obstacles;

(iii) Geotechnical conditions affecting the work; and

(iv) UXO, Dangerous Goods and Hazardous Substances.

(d) Natural Conditions:

(i) Natural obstructions;

(ii) Coral reef or other water or marine life to be protected; and

(iii) Danger from wildlife and precautions to be taken.

(e) Surface Traffic:

(i) Surface traffic details, timings and restrictions, and

(ii) Danger, precautions and control of surface traffic.

(f) Diving Works Area:

(i) Demarcation of diving location; and

(ii) Limits of working area.

10.4 PERSONNEL FOR DIVING OPERATIONS

10.4.1 Qualification ~~of Diving Personnel~~

Qualification of the Dive Team members shall be in accordance with the specified OSHA requirements and shall for example include the following:

(1) Each Diver shall possess a valid commercial diving certification for the appropriate training level issued by an internationally recognised Diver competence assessment organisation which shall be approved by the HSO and Engineer.

(2) Each Dive Team member shall have the experience and training necessary to perform assigned tasks in a safe and healthful manner.

(3) Each Dive Team member shall have experience and training in the following:

(a) The use of tools, equipment and systems relevant to assigned tasks;

(b) Techniques of the assigned diving mode; and

(c) Diving Operations and emergency procedures.

(4) All Dive Team members shall be trained in CPR and first aid to a minimum standard of that recommended by the International Federation of Red Cross and Red Crescent Societies standard course or equivalent.

(5) Dive Team members who are exposed to or control the exposure of others to hyperbaric conditions shall be trained in diving-related physics and physiology.

(6) The qualifications of all Divers shall be checked and verified in accordance with the specified OSHA requirements.

10.4.2 Designated Person-in-Charge (DPIC)

(1) The Contractor shall assign a DPIC to each Diving Operation.

(2) The DPIC shall have experience in, and knowledge of all phases of the Diving Operation for which he is responsible.

(3) The DPIC shall be immediately responsible for the health and safety of the Dive Team.

(4) The DPIC shall be stationed at the dive location, and shall not be stationed at another dive location (i.e., the DPIC must be stationed at one (1) dive location and be responsible only for the Diving Operation at that location).

(5) The DPIC can be a Diver when qualified as a Diver, and when another Dive Team member is available at the dive location who is trained and capable of performing the necessary functions of the DPIC's duties when the DPIC is a Diver in the water.

(6) The qualifications of the DPIC shall be checked and verified in accordance with the specified OSHA requirements.

10.4.3 Duties of DPIC

The DPIC shall have the duties and responsibilities required by the content of this Chapter and the specified OSHA requirements, including the following:

(1) Manage the health and safety of the Dive Team.

(2) Manage and supervise the Diving Operation.

(3) Assign tasks to Dive Team members.

(4) Issue instructions for the Diving Operation to the Dive Team.

(5) Issue instructions to temporarily stop work when the DPIC considers that it is not safe to continue.

(6) Support the HSO with the health and safety management of the Diving Operations.

(7) Ensure that all members of the Dive Team keep records.

(8) Collect records, check, approve and submit to HSO.

10.4.4 Diver Assignments

(1) Each Dive Team member shall be assigned tasks commensurate to the persons experience and training, except that limited additional tasks may be assigned to a Diver undergoing training provided that these tasks are performed under the direct supervision of an experienced Dive Team member.

(2) The HSO shall not permit a Dive Team member to be exposed to hyperbaric conditions against the member's will, except when necessary to complete decompression or treatment procedures.

(3) The HSO shall not permit a Dive Team member to dive or be otherwise exposed to hyperbaric conditions for the duration of any temporary physical impairment or condition which is likely to affect adversely the safety or health of a Dive Team member.

10.4.5 Assistants and Duties ~~of Dive Team~~

The Contractor shall appoint such Divers and support assistants within each Dive Team as are considered necessary by the DPIC for the Dive Team to discharge its duties in a safe and competent manner.

All Dive Team support assistants shall have the duties and responsibilities required by the content of this Chapter and the specified OSHA requirements, including the following:

(1) Operate the air compressors.

(2) Control the valve for the surface supply of breathing air.

(3) Communicate with the Diver so that the Diver descends and ascends properly.

(4) Communicate to supply the air to the Diver properly between the assistants in charge to control the valve and to communicate with the Diver.

(5) Inform the Diver immediately when there is any risk due to a failure of air supply, weather change, sea condition changes, operations of other vessels and potential hazards.

(6) Inspect the connection between the helmet and the breastplate of the Diver before the start of Diving Operations when using a diving helmet.

(7) Coordinate the position of the workboat and avoid any conflict with the Diver.

(8) Ensure the safety of the Diver by maintaining communication with voice or video communication device.

(9) Ensure the safety of the Diver by observing the air bubble of breathing of the Diver.

10.4.6 Health Checks

(1) In addition to the requirements of JSSS 1.18 [*Proper Placement of Contractor's Personnel*] and in compliance with the OSHA requirement for the Contractor to make himself fully aware, the Contractor shall carry out particular health checks on all Divers to ascertain that they are medically and physically fit to perform their duties.

(2) Such checks shall include for example checks for the existence of any illness or any deficiency in:

(a) The respiratory system, cardiovascular system, nervous system, musculoskeletal system, ear, nose and throat, and endocrine system;

(b) Vision;

(c) Dental health; and

(d) Any other health conditions and disease which may affect the Diving Operation.

(3) Any Diver that does not pass the above checks shall not be allowed to dive until the condition has improved and after further checks are successful.

(4) Additionally, and in accordance with the OSHA standard:

(a) The DPIC shall inquire into each Diver's health prior to each Diving Operation; and

(b) The Contractor shall advise all Divers of the procedures for reporting physical problems or adverse physiological effects during and after diving.

(5) Consistent with the above and the OSHA provisions, the Contractor shall not require any Diver to dive or otherwise work under hyperbaric conditions when the Diver:

(a) Has any ailment that is likely to adversely affect the safety or health of any member of the Dive Team;

(b) Lacks the necessary training or education; or

(c) Refuses to work under such hyperbaric conditions.

(6) Should a Diver request termination during a dive, the Contractor shall, if necessary, prolong the Diver's exposure to hyperbaric conditions to complete decompression or medical recompression treatment to avoid serious physical harm or death to the Diver.

10.5 DIVING EQUIPMENT, TOOLS, FACILITIES AND WORKBOATS,

コメントの追加 [MJD192]:
This comma requires to be deleted

コメントの追加 [SS193R192]: Confirmed.

10.5.1 Diving Equipment

(1) The Contractor shall provide workboats, diving equipment, work tools and other facilities fully in compliance with OSHA 1910.430 [Equipment].

(2) Workboats, diving equipment, work tools and other facilities are defined as Contractor's

Equipment and shall therefore comply with JSSS 1.35 [*Contractor's Equipment, Temporary Works, Safety Equipment and PPE*].

10.5.2 Diving Workboats

(1) Workboats shall be:

(a) Robust and seaworthy;

(b) Stable in operation;

(c) Suitable size, draft and shape to suit the Diving Operations;

(d) Equipped with marine band radio and with a shore station that is attended at all time that the workboat is in operation and can provide emergency support if required;

(e) Equipped with marine lighting;

(f) Equipped with life jackets, first aid sets, distress flares and other necessary emergency equipment;

(g) Provided with secure and robust ladders or platforms for Divers to easily enter or exit the water; and

(h) Provided with a roof and cabin to protect the crew and Dive Team from heat, cold and rain.

(2) Workboats shall be provided with the means to assist an injured Diver from the water (such as an in-water platform, small boat or basket stretcher) or into a diving bell. The Contractor shall ensure that there are sufficient Dive Team members or additional Contractor's Personnel to assist.

(3) Unless otherwise specified, the Contractor shall provide a separate small boat for rescue at the workboat, suitable for assisting and recovering Divers who are in difficulty or have drifted away from position.

10.5.3 Inspections and Maintenance

The Contractor shall comply with all requirements of JSSS 4.2 [*Inspection, Maintenance and Repair*] and ensure that workboats, equipment, tools and facilities are inspected, fully maintained and operational when mobilised to the Site and thereafter are inspected, maintained and repaired before the commencement of the first and of all subsequent days of operation.

The Contractor shall keep the inspection and working records and make them available for the inspection of the Engineer upon request.

The Contractor shall prohibit use of workboats, equipment, tools and facilities until the requirements of JSSS 4.2 [*Inspection, Maintenance and Repair*] are fully complied with.

10.6 PARTICULAR SAFETY MEASURES

10.6.1 Measures before Diving Operations

The Contractor shall take the following measures before commencement of any Diving Operation:

(1) Dive Teams

(a) Discuss the diving methods and safety procedures;

(b) Discuss the work methods and procedures and the assignment and placing of the Divers and work task sharing;

(c) Advise of the diving timetable and required compliance;

(d) Inform of the climatic, water, natural and physical conditions;

(e) Conduct the health check; and

(f) Check that support assistants and crew on the workboat are wearing life jackets.

(2) Equipment, work tools and other facilities

Inspect the equipment, work tools and other facilities, prohibit use when any defect or non-compliance is found, reinspect when a repair or replacement is completed.

(3) Diving workboats

(a) Inspect workboats and rescue boats;

(b) Display the international maritime diving signal flag and display signs and lights as necessary on the workboat;

(c) Securely anchor the workboat to the water or seabed; and

(d) Stop the engine during Diving Operation.

(4) Diving Operation site

(a) Provide signs including red flags, buoys and notices to demarcate the Diving Operation site; and

(b) Install a downline with depth indication marks at 3m intervals from the workboat to the sea bed at the Diving Operation site to act as a guideline for descending or ascending and as a guide for transfer of tools and equipment.

(5) Diving Equipment

(a) Check the diving equipment to be carried by the Divers:

(i) For Surface-Supplied Air Diving, check for example: air connections, compressed air supply, weight belt, voice or video, communication device, torch, watch, water depth gauge, knife and the like; and

(ii) For SCUBA Diving, check for example: first stage, second stage and spare regulators, available air volume, secondary air supply, buoyancy control device, weight belt, tank straps, air valve, communication device, watch, water depth gauge, knife and the like.

(b) Check that the downline is secure and tight;

(c) Ensure as a minimum, that a two-way voice or video communication link is set up and working at least between a single selected working Diver and the DPIC at the surface control point; and

If any defect is identified by the above checks, prohibit the Diving Operation from commencing.

10.6.2 Measures during Diving Operations

The Contractor shall take the following safety measures during each Diving Operation:

(1) A designated member (or members) of the workboat crew shall assist the DPIC by observing the Diving Operations of all Divers throughout all Diving Operation and inform the DPIC when Divers are carried away by currents and their location when they surface after their dive ascent.

(2) A designated member (or members) of the workboat crew on the workboat shall also keep a look-out for any other vessels that may approach the Diving Operation site. The designated member(s) shall alert any other vessels related or not related with the Diving Operations with requisite warning blasts from the workboat's siren, loudhailer, flares and/or flags, etc. in order to prevent them from approaching and entering the Diving Operation site.

(3) Measures for the Divers

(a) Prohibit the Dive Team from commencing any Diving Operation without the DPIC and the complete Dive Team present, ready and equipped;

(b) Ensure that the Divers use the ladders for entering and exiting the water for the Diving Operation;

(c) Ensure that Divers use the downline for descending and ascending;

(d) Maintain constant voice or video communication through the provided link; and

(e) Ensure that the Divers constantly communicate with each other by hand signals and slate messaging.

(4) Ensure the DPIC or a Dive Team member at the surface, constantly observe the weather and water conditions and if there is any change that meets the work stop criteria, or if the conditions are considered to be otherwise unsafe by the DPIC, immediately stop the Diving Operation and ensure that the Divers are removed from the water in a safe and controlled manner.

(5) Safety and Health Management of Diving Operations

(a) Manage the Diving Works for each Diver so the Diver takes sufficient and safe surface time between dives to maintain his health and wellbeing;

(b) Ensure that sufficient numbers of Divers and standby Divers are available to ensure that Divers are not in the water for excessive periods;

(c) Ensure that each Diver keeps an accurate record of his dive profile for every dive, showing overall time, bottom time and depth, decompression times and depths and that these are summarised by the Diver with a record of the number of dives on a daily, weekly and monthly basis;

(d) Ensure that the DPIC reviews and approves such records and that same are submitted by the DPIC to the HSO for the HSO's review and countersignature and made available for the Engineer's inspection; and

(e) Unless otherwise required by the Law of the Country, the Contractor shall retain all dive records for the periods specified in OSHA 1910.440 [Record keeping requirements].

10.7 DIVING ACCIDENT RESPONSE PLAN

10.7.1 General

The Contractor shall prepare an Accident Response Plan for the Diving Works in accordance with JSSS 1.24 [*Accident Response Plan*].

10.7.2 Provisions by the Contractor

The Contractor shall comply with following requirements prior to Diving Works.

(1) In accordance with the requirements of OSHA 1910.423(c) [*Recompression facility*], the Contractor shall make a recompression/decompression chamber available at the dive location to treat decompression sickness.

(2) The Contractor shall provide any additional recompression/decompression equipment and medical support facilities as necessary to ensure the health and safety of any members of the Dive Team that may require treatment for decompression sickness and other dive related conditions.

(3) The Contractor shall provide rescue and safety equipment, an emergency aid contact list, a first aid kit and supplies. The rescue and safety equipment including decompression facilities, first aid kit and supplies provided at the dive location shall be appropriate for

the Diving Works and approved by a physician. When used in a decompression chamber or bell, the first aid kit and any medication shall be suitable for use under hyperbaric conditions.

(4) The HSO and DPIC shall ensure that the recompression/decompression chamber, any additional recompression/decompression equipment, medical support facilities, rescue and safety equipment, emergency aid list and first aid kit are complete and available at the dive location.

ページ 160: [1] コメントの追加 [SS182R180]　　SS　　2020/09/16 14:45:00

JICA does not want the HSO take actions of review and approval of PSP. I suggest to add “internally” and 2subimmted to the Engineer for his review” as left.

The addition of new stipulation will make JICA confused, so I want to limit minor revision.

ページ 160: [2] コメントの追加 [MJD181R180]　Mike Durrant　　2020/09/15 13:28:00

For diving works, I suggest that this is different to JSSS 1.7 and cannot always be the case. This plan must be prepared by the DPIC or other designated, qualified and experienced expert diver which the HSO is not and neither is the Engineer. Most of this information will in any case already be included in the Baseline Safety Plan.

This is basically a requirement of OSHA. Please refer to “E. 29 CFR 1910.421 [*Pre-dive procedures]*. It could be reviewed by the HSO so that he is aware of it but it will generally not be changed by him. It can also be sent to the Engineer for his information if there is time JICA and it may be reviewed by him but probably without comment. As suggested before, the Engineer could be asked to witness the employee briefing just before each dive to ensure that all items are properly explained and that the Baseline Safety Plan and Particular Safety Plan are complied with. If required a suitable clause can be added after (6) as follows:
below.

The HSO and Engineer shall be invited to attend and witness the employee briefings immediately before each dive to ensure that all aspects of the Baseline and Particular Safety Plans have been properly explained and understood and all other requirements have been complied with.

Please advise

添付書類-11
安全スペックの使用ガイド英文案
検討経緯書

Yellow marking and red letters : Comments by NK (20200319)
DCI changes *and notes* (20200326)

Indicative Draft

JICA STANDARD SAFETY SPECIFICATION FOR PROJECT IMPLEMENTATION UNDER JAPANESE ODA

USER GUIDE

Japan International Cooperation Agency (JICA)

_____, 2020

Prepared: DCI for NK
Issue: 1
Revision:
Date: 26/03/2020

JICA STANDARD SAFETY SPECIFICATION (JSSS)
USER GUIDE

Table of Contents

JICA STANDARD SAFETY SPECIFICATION (JSSS)
USER GUIDE

1.1. General

1.1.1. Purpose

(1) This User Guide is designed for the information and assistance of Executing Agencies and (where applicable) their consultants for use in the preparation of Bidding and Contract Documents and for the evaluation, award and implementation of Contracts, for Projects where such agencies have agreed with JICA to adopt JSSS.

(2) Definitions and abbreviations used in this User Guide are the same as used in JSSS.

(3) If the user has questions regarding the use of JSSS, the appropriate JICA's official should be consulted.

(4) This User Guide is an information document only which will not form a part of any Contract for the execution of any construction works.

1.1.2. Objective of JSSS

(1) As noted in JSSS, JICA require that all parties engaged upon their ODA Projects shall endeavour to establish and maintain a culture ensuring human security and the maintenance of human rights as an essential and fundamental feature.

(2) The common objective shall be the achievement of a zero-accident rate on the Works, adopting the slogan of "Safety First" by creating a working environment where health and safety are of the highest priority.

(3) To assist with achieving this objective, JICA has published the JICA Standard Safety Specification (referred to as "JSSS"), which JICA wishes to be adopted for future selected Projects by the Executing Agencies for such Projects.

1.1.3. Effectiveness

JSSS has been published on-line by JICA and it shall become effective and used by Executing Agencies for particular Projects on the date that the Loan Agreement for that Project is executed and where the parties to such Loan Agreement have formally and specifically agreed to adopt JSSS as the technical basis for Health and Safety management on that Project.

1.1.4. Content

(1) JSSS specifies the minimum health and safety requirements to be complied with by the Contractor throughout the execution of the Works.

(2) JSSS contains general requirements for health and safety management with procedural requirements for the preparation, submission, review and response processes for Method Statements and Safety Plans for the safe execution of the Works, involvement of Employer, Engineer and other contractors, together with requirements for general administration and management of health and safety.

1.2. Application to Grant Aid and other Projects

1.2.1. General

(1) JSSS has been drafted to apply to JICA Loan Projects which are usually based upon the Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer, Multilateral Development Bank Harmonised Edition, June 2010.

(2) JSSS shall apply equally to other JICA assisted Projects that have been awarded under different forms of contract including those under Contractor design contracts and contracts under the JICA Grant Aid programme. When so used, suitable modification shall be required to the definitions and text of JSSS and the Bidding Documents for those

Projects to ensure compatibility and consistency with the relevant contract requirements for the Project, reflecting the same intentions, standards and procedures for improving health and safety.

1.3. Incorporation of JSSS into Bids and Contracts

1.3.1. General

Where the parties to a Loan Agreement have specifically agreed to adopt JSSS for a new Project, the Bidding Documents shall clearly state this and Bids will be requested on this basis.

NK: SBD, Section II. Bid Data Sheet can be neither modified nor added new items, so we will delete the above (…state this with suitable addition to Section II. Bid Data Sheet and…). We consider the above sentence needs to be modified.

I have modified as above however, where in the Instructions to Bidders is this now to be stated? There should be no change to the Bidding Documents unless prescribed in the SBD.

I still think that it is necessary to update the SBD in future.

1.3.2. Safety Specification and Technical Specification

(1) JSSS shall be included as a part of the Specification for the Works, which shall be subdivided into two parts namely:

(a) The Project Safety Specification (including JSSS), and

(b) The Technical Specification

(2) The Project Safety Specification shall consist of two (2) parts namely:

(a) Part 1: JICA Standard Safety Specification (JSSS):

Comprising JSSS as issued at the base date of the Contract

(b) Part 2: Particular Safety Specification:

Comprising a schedule containing required amendments to the various requirements of as necessary to create a clear and precise safety specification for the Works.

(3) The "Technical Specification" shall comprise the specification for the general and technical aspects of the Works, excluding requirements for health and safety.

1.3.3. Drafting of Particular Safety Specification

(1) JICA emphasise the importance of the Executing Agency assisting in the pursuit of a zero-accident rate on the Works, creating a safe working environment for the Works, by including for example: reasonable Time(s) for Completion; reasonable, continuous and unobstructed access to the Site and sufficient Site area(s), working and storage areas, all wherever possible. Requirements shall be clearly described in the Bidding Documents.

NK: We considers it seems better to add "for the achievement of a zero-accident rate on the Works" to (1) .

OK added above and edited.

(2) As JSSS is a specification of minimum requirements for compliance by the Contractor, there shall be no substantial deletion or alteration of JSSS requirements in the Particular Safety Specification unless so justified due the scope of Works.

(3) Executing Agencies shall take care when they (or their consultants) prepare the Technical Specification and other parts of the Bidding Documents where JSSS is to be adopted, to ensure that there is no duplication of the health and safety requirements contained in the Project Safety Specification.

1.3.4. Composition and Priority of Specifications:

(1) The Project Safety Specification, together with the Technical Specification shall collectively form the "Specification" as defined in the Contract.

(2) For the purposes of interpretation, the priority of the documents forming the Specification shall be in accordance with the following:

(a) The "Project Safety Specification" shall have priority over other parts of the Specification in respect of health and safety requirements; and

(b) Within the "Project Safety Specification" the Particular Safety Specification shall have priority over JSSS.

(3) If an ambiguity or discrepancy is found in the documents, the Engineer shall issue any necessary clarification or instruction.

1.3.5. Ongoing Projects

(1) Unless otherwise agreed between JICA and the Executing Agency, JSSS shall not be automatically used on all JICA funded Projects, JSSS shall only be used when it becomes effective on the particular ODA Project as described in this User Guide 1.1.3 [*Effectiveness*].

(2) Where JSSS is already in use on any Project and by further agreement between JICA and the Executing Agency, future issues/revisions of JSSS may be applied after the date that such future issues/revisions are published on line subject to issue by the Engineer of an appropriate Variation under GC 13.1 [*Right to Vary*].

1.3.6. JICA Standard Bidding Documents

~~(1) JICA intend to amend and re-issue the "Standard Bidding Documents Under Japanese ODA Loans, Procurement of Works", published by the Japan International Cooperation Agency (JICA) (hereinafter referred to as "JSBD") to cover the required amendments to accommodate JSSS.~~

~~(2) In order that JSSS can be used without delay on particular Projects, the Bidding Documents for such Projects shall be drafted to take account of the above and following amendments in advance of the publication of the next issue of JSBD.~~

NK: The amendment to JSBD is not necessary as the PC is not amended related with JSSS now. We consider the above (1) and (2) can be deleted and propose to replace them with the following if appreciate:

To make the Project Safety Specification as one of Bidding Documents, it shall be included as a part of Specification described in Section VI. Works Requirement of Standard Bidding Documents Under Japanese ODA Loans, Procurement of Works", published by the Japan International Cooperation Agency (JICA) (hereinafter referred to as "JSBD").

Yes, I fully understand this however this is not PC it is the Instructions to Bidders (ITB).

I had prepared appropriate information in the earlier Issue 6 (please refer to Annex 1.3 Required Amendments to JICA Standard Bidding Documents) but JICA have deleted this and instructed that no change in SBD is to be suggested.

We have dealt with PC in a manner which should probably be OK but the document is silent on ITB, and some thought needs to be given to this.

The following needs some mention:

1) Section IV. Bidding Forms BF-39, SBD page 173 requires improvement by copy pasting the content of Annex 1.2 Bid Stage Safety Plan.

2) Section III. Evaluation and Qualification Criteria e.g. SBD page 110 items 1.1.1, needs change to included reference to HSO,

3) Bidders Safety Declaration requires some instruction as to where in the Bid forms, this is to be included.

I suggest it is better if the above is left in for now so that this can be discussed between JICA and NK.

1.4. The Particular Safety Specification

1.4.1. General

(1) The Particular Safety Specification shall be carefully and precisely drafted by amending the various general requirement clauses of JSSS by adding particular requirements to ensure that the scope is precisely specified so that the Contractor's obligations are clear and unambiguous.

(2) The amendments shall cover the examples listed below, noting that this listing is not exhaustive.

(3) Any reference to "the Particular Safety Specification" shall mean that either full requirements are required to be stated in the Particular Safety Specification or that reference is to be made in that specification to parts of the Technical Specification or other documents comprised in the Contract, where full requirements are stated.

Still Under consideration by DCI:

(4) A check list shall be included at the beginning of the Particular Safety Specification, in this User Guide which shall list all of the clauses in the following table, state briefly what action has been taken and also indicate where full requirements are stated.

NK: The Check list may be helpful for the Employer to understand and avoid missing items.

Yes but it is also necessary for us to prepare the detail first and then decide if it is good idea to give the Employer an easy option.

This was originally designed by is to allow JICA to check whether changes had been incorporated properly but this is not the case and there appears to be little point in preparing a check list if nobody is checking.

1.4.2. JSSS Items to be Considered for the Particular Safety Specification.

The following table still requires our further coordination with all other chapters of JSSS. Further editing and addition is necessary and all clause numbering and descriptions ultimately require to be coordinated and updated

JSSS Reference	Particular Safety Specification Requirements
1.4.10 Compliance with JSSS and Other Regulations	The Contractor's obligations to provide temporary services and facilities generally finish at the end of the Time for Completion plus any additional period(s) within the Defects Notification Period (DNP) when the Contractor may be completing any outstanding work or remedying any defective work, If for any reason the Contractor is required to maintain a further presence at the Site during the DNP, this shall be clearly stated in the Particular Safety Specification together with the reasons, scope and duration of such presence. Suitable facility for pricing shall also be included in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items, with unit rate for provision being shown as "month". The method of payment to the Contractor shall also be specified

JSSS Reference	Particular Safety Specification Requirements
1.10 Engineer's Safety Representative	The Particular Safety Specification shall state if the Engineer will appoint a full-time Safety Representative as an assistant upon the Works. If no such requirement is specified in the Particular Safety Specification it is to be assumed that the Engineer or a duly authorised assistant shall act in a part-time capacity.
1.12 Health and Safety Officer at the Site (HSO)	The general basis JSSS is that the HSO is required to be assigned full-time upon the Works and to spend all of his time on health and safety management. JICA advise that full-time assignment is the normal requirement and part-time or shared assignment is only allowable on extremely small Projects when separate written justification has been provided by the Executing Agency to JICA. In addition to stating as above, facility for pricing the cost of HSO shall be included in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items, to "Provide HSO and staff" with unit rate for provision being shown as "month". Quantity in months shall be of the required period for provision which will usually be the Time for Completion and any allowance as required during the Defects Notification Period. *NK: We think this shall be recorded in the Minutes of Discussion at JICA appraisal time.* *NK: May we know what facility do you expect? For example, transportation for HSO and his staff?* *By "facility": we mean allowing the Bidder the facility for pricing this requirement in his bid.* *Please let me know if you think we need to state facilities.*
1.21 Skill Training	The Particular Safety Specification shall state whether classroom-based skill training of counterpart Operation Leaders is, or is not, required. The Contractor shall be expected in any event to be provide OJT via his senior personnel to local counterparts. The Particular Safety Specification shall state whether the Contractor is allowed to bring into the Country for use upon the Works any unqualified, unskilled or inexperienced foreign Contractor's Personnel. If skill training is required, the Particular Safety Specification shall state how many candidates shall be selected, for which skill groups and for how long. This shall be determined by the scope and nature of the Works. The Particular Safety Specification shall specify for example: (1) Requirements for classrooms and whether these can be of the Contractor's office facilities at the Site.

JSSS Reference	Particular Safety Specification Requirements
	(2) Requirements for training facilities (for example furniture, equipment, computers, sample tools and working equipment, other teaching aids and the like). (3) Requirements for teachers. (4) If classroom lessons are to be full-time or part-time (5) That candidates shall be paid their full wages and allowances during teaching time. (6) That the Contractor shall design syllabi to compliment the candidates' skill group, their work and position at the Site. (7) In addition to skill training, syllabi shall include health and safety training to an international level of appreciation with a general introduction to OSHA and other international safety standards and regulations. (8) Requirements for testing of candidates for example that the Contractor shall test candidates upon completion of their course, prepare and issue certificates of attendance and successful completion of each course. *NK: We have an opinion that such details as (1) to (8) are necessary to specify by the Employer.* *Yes that is the requirement.* In addition to stating as above and if there is a requirement for such classroom-based skill training, appropriate pay items shall be included for each of the above in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items for: Assignment of Operation Leaders as teachers: Unit: man-month Quantity: Total estimated man-months Use of Training Facilities: Sum If any Training Facilities are to be handed to the Employer or training aids given to candidates, then these shall be clearly specified in the Particular Safety Specification, items shall be listed with quantities given, otherwise all such Training Facilities shall remain the property of the Contractor and shall be removed on completion. *NK: May we know the meaning of "issued to candidates" or describe in other words?* *e.g. notebook computers, books, training and aids, I have rephrased*
1.22.7 Rescue teams and equipment	*NK: The requirement for rescue teams and rescue equipment shall be specified.* *Not in this case this is for Dangerous Work for which the Contractor shall be responsible for this to ensure the safety of his workers.*

JSSS Reference	Particular Safety Specification Requirements
1.22.12 Hazardous Substances	After following Site survey and investigation, it is considered that there is any likelihood of the existence of Hazardous Substances at the Site of the Works or in any existing buildings and structures, or in the Works, then this shall be stated in the Particularly Safety Specification and the Employer's requirements for removal and disposal by the Contractor shall be stated.
1.24 Accident Response Plan	Although the Contract places obligations upon the Contractor under GC6.7 [Health and Safety], the Particular Safety Specification shall include a listing and description of any particular services and facilities that the Contractor is required to provide at the Site in addition to those already described in the *Conditions of* Contract. This is particularly relevant where the Site is located at an excessive distance from urban areas and/or where there is a lack of immediate availability of medical facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel and Employer's Personnel and all other persons who are entitled to be on the Site and other places (if any) where the Works are being executed. The circumstances shall be investigated by Executing Agencies and their consultants during the design stage and full requirements shall be clearly described in the Bidding Documents. *NK: There are same phrase of "described in the Contract". May it be modified?* *Please let me consider later, this is still very much an early draft, see also above change.* *Normally it would be in the Bidding documents so that the bidder can price for it.* Such additional facilities at the Site could for example include: (1) Enhanced medical staff with qualified doctor(s). (2) Enhanced first aid and treatment facilities and staff. (3) Enhanced medical equipment, medical supplies, medicines and drugs. (4) Additional treatment and recovery rooms. (5) An equipped ambulance based at the Site with qualified driver and attenders. (6) Where transfer time by road can exceed one (1) hour, emergency air-ambulance evacuation services, shall also be considered in addition to the above. (7) Above available 7 days per week, 24 hours per day or during the normal working hours stated in the Contract Data, etc.

JSSS Reference	Particular Safety Specification Requirements
	The Particular Safety Specification shall state whether the medical, first aid and related services and facilities at the Site are to be available for during the normal working hours stated in the Contract or for any longer times. If any facilities as required under the Contract or additional facilities as required by JSSS are not required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking Over Certificate then this shall be clearly specified in the Particular Safety Specification, such items shall be listed with quantities and fully specified, otherwise all such facilities shall remain the property of the Contractor and shall be removed on or before the issue of the Taking Over Certificate. The Particular Safety Specification shall also state whether the medical, first aid and related services and facilities at the Site for accidental injuries (or more) shall also be made available and whether free of charge or not to any accompanying family members of the Contractor's Personnel, the Employer's Personnel and the family members of any other persons who are entitled to be on the Site and other places (if any) where the Works are being executed. In addition to stating as above, if there is a requirement for such additional facilities, appropriate pay items shall be included for each of the above in Section IV. Bidding Forms, Bill of Quantities, Bill No. 1: General Items, with unit for provision of facilities shown as "Sum" and unit rate/quantity for provision being shown as "month". Quantity in "months" shall be of the required period for provision which will usually be the Time for Completion and any required time during the Defects Notification Period.
1.26 Emergency Response Plan	In locations where there is a risk of flooding, earthquake, volcanic or similar activity, the Contractor is required to take measures under JSSS 1.27 for basic emergency response. The Employer may require additional measures and if so these shall be stated in the Particular Safety Specification. These may include for example a requirement of the Contractor to establish, train and maintain a specialist team at the Site to assist in the event of an emergency and the provision of specialist equipment. In such cases, the Particular Safety Specification shall specify whether this is required, details of personnel and equipment to be provided so that the Contractor is made fully aware and is able to assess the extent, risk and cost of the requirements. An appropriate pay item shall be included for this in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items, with unit for provision of facilities shown as "Sum" and unit rate/quantity for provision being shown as "month".

JSSS Reference	Particular Safety Specification Requirements
1.29 Project Safety Committee	*(On large Projects with multiple contract packages and contractors)* The Particular Safety Specification shall state if a Project Safety Committee is to be established for the Project and describe any further requirements.
1.30 Health and Safety Coordination with Other Contractors, refer also to GC 2.3 [*Employer's Personnel*]	The Particular Safety Specification shall describe the individual scope of Works for any other contractors to be employed by the Employer on the Site and where possible identify them by name. Also list any legally constituted public authorities who may be employed in the execution on or near the Site of any work not included in the Contract, and specify scope, working locations, access and timing as far as possible.
1.36 Health Matters	Although the Contract places obligations upon the Contractor under GC6.7 [*Health and Safety*], the Particular Safety Specification should include a listing and description of any particular services and facilities that the Contractor is required to provide at the Site for health control in addition to those already described in the Contract. The listing should also include furniture and equipment for rest stations, restroom, dining facilities, canteens, sanitary facilities, recreational facilities, shower facilities, changing rooms and the like together with a description of any requirements for use and for example whether facilities can be used by the Employer's Personnel and their families. This is particularly relevant where the Site is situated some distance away from urban areas and/or where there is a lack of immediate availability of suitable medical facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel, to compensate for any lack of available services or facilities or lack of any local health authorities. The circumstances shall be investigated by Executing Agencies and their consultants during the design stage and full requirements shall be clearly described in the Bidding Documents. Consideration as to whether assignment of healthcare staff is required to be full time or part time In addition to stating as above, if there is a requirement for such additional facilities, appropriate pay items shall be included for each of the above in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items, with unit for provision of facilities shown as "Sum" and unit rate/quantity being shown as "month".

JSSS Reference	Particular Safety Specification Requirements
	Quantity in "months" shall be of the required period for provision which will usually be the Time for Completion and any required time during the Defects Notification Period. If any facilities as required under the Contract or additional facilities as required by JSSS are not required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking Over Certificate then this shall be clearly specified in the Particular Safety Specification, items shall be listed with quantities and fully specified, otherwise all such facilities shall remain the property of the Contractor and shall be removed on or before the issue of the Taking Over Certificate.
1.37 Design and Management of Temporary Works	As a standard requirement, the Particular Safety Specification shall require Bidders to comply with BS5975 (latest issue) or approved equivalent for the design and management of Temporary Works. If Bidders are NOT required to comply with BS5975, the Particular Safety Specification shall state this and also state that Bidders are to comply in any event with the specified requirements of JSSS 1.37 and submit full details in the Safety Plan.
1.38 User Training	The Particular Safety Specification shall state whether User Training of Employer's Personnel is required so that the Works or any part or Section thereof can be used, operated and maintained in a safe manner. If it is required, the Particular Safety Specification shall modify or add to the requirements of JSSS 1.38 [*User Training*] and state the precise requirements including details of required training, numbers of candidates and duration of training. This shall be determined by the scope and nature of the Works and the number of users, management staff, operators, maintenance staff who will be engaged upon the Works. The Particular Safety Specification shall state whether lessons will be full-time or part-time. The Contractor shall design syllabi to compliment the training courses and in addition to user training, syllabi shall include health and safety training to an international level of appreciation with a general introduction to OSHA and other international safety standards and regulations. The Contractor shall test candidates upon completion of their course, prepare and issue certificates of attendance and successful completion of each course. In addition to stating as above and if there is a requirement for such user training, appropriate pay items shall be included for each of the above in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items for: Assignment of teachers for user training Unit: man-month Quantity: Total estimated man-months Provision and use of Training Facilities: Sum

JSSS Reference	Particular Safety Specification Requirements
	If any Training Facilities are to be handed to the Employer or issued to candidates, then this shall be clearly specified in the Particular Safety Specification, items shall be listed with quantities and fully specified, otherwise all such Training Facilities shall remain the property of the Contractor and shall be removed on completion.
1.39 Unexploded Ordnance	If there is a possibility that any UXO may exist at the Site, then this shall be surveyed and investigated by the Employer before Bids are requested and the result of this investigation shall be clearly stated and full information including survey and investigation results shall be provided by the Employer in the Particular Safety Specification. Clearance of UXO shall be undertaken by the Employer as a condition precedent to commencement under GCC 8.1 [*Commencement of Works*], at the cost of the Employer and carried out by specialist government organisations, forces or contractor(s) that are appropriately and specifically qualified, skilled and experienced in the safe and environmentally acceptable removal and disposal of UXO, engaged directly by the Employer. Completion of clearance shall be evidenced through the issue by the Employer's specialist remover of a certificate of UXO clearance from the Site area. A copy of this certificate shall be provided to the Engineer and the Contractor. No work shall commence at the Site until the receipt of a by the Engineer and Contractor of a copy of this certificate. Should the Contractor encounter any UXO, after a clearance certificate has been issued in accordance with the above, he shall immediately stop all affected work at Site, clear the area of all Contractor's Personnel, Employer's Personnel and all other persons and notify the Engineer and relevant authorities. Unless otherwise agreed between Employer and Contractor, the Employer shall then make further arrangements for removal and disposal, then obtain and issue a further clearance certificate. Work shall resume in the affected areas after the Contractor has received a copy if the further clearance certificate together with any further instructions from the Engineer.
2.1 Work Environment Other Dangerous Work	If the scope of Works includes any other Dangerous Work, as defined in JSSS Annex 1.1 [*Definitions and Abbreviations*], this shall be stated and full details provided of all likely hazards in the Particular Safety Specification. For any work to be perform in Operational Areas, the time(s) and conditions of operation shall be described together with any restrictions on the Contractor's working methods, times and arrangements shall be further described in detail. The respective responsibilities for insurance, health and safety management, security, health and welfare facilities, etc., between

JSSS Reference	Particular Safety Specification Requirements
	the Employer and Contractor(s) shall be clearly described so that there is no doubt over what each party is to perform or provide. A copy of the Employer's working procedures, including their health and safety procedures shall be provided to Bidders for their study during the Bidding period.
2.2 Risk Control Around the Site Site Perimeter Fencing:	The Particular Safety Specification shall describe the required Site Perimeter fencing showing the extent, dimensions, constructional details and specification, whether temporary or permanent. This shall also be shown on the Drawings. Requirements for permanent or temporary fencing or barriers within the Site shall be described and shown for example around areas where Dangerous Work is being carried out. Gates, barriers and other measures at Site entrances shall be described together with any arrangements for communications, lighting and power supply. Requirements for security at the Site entrance and also around the Site shall be described and whether this is to be provided by the Contractor or the Employer.
2.8 Fire Prevention	Although the Contract places obligations upon the Contractor for care of the Works, the Particular Safety Specification should include a listing and description of any particular fire-fighting and rescue services and facilities that the Contractor is required to provide at the Site. This is particularly relevant where the Site is situated some distance away from urban areas and/or where there is a lack of immediate availability of suitable fire-fighting and rescue facilities, or where such facilities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel, to compensate for any lack of available services or facilities or lack of any local health authorities. The circumstances shall be investigated by Executing Agencies and their consultants during the design stage and full requirements shall be clearly specified in the Particular Safety Specification. Such additional facilities at the Site could for example include: (1) An equipped fire engine based at the Site with qualified driver and crew selected from the workers at the Site. (2) Sufficient temporary water and power supply to maintain emergency use. (3) Additional PPE for the fire-fighting and rescue team. (4) Enhanced fire protection equipment and facilities around the Site.

JSSS Reference	Particular Safety Specification Requirements
	(5) Above available 7 days per week, 24 hours per day or during the normal working hours stated in the Contract Data, etc. Where applicable, details shall be provided in the Particular Safety Specification for the selection, training and equipping of emergency fire-fighting teams selected from existing Contractor's Personnel at the Site, who in addition to their normal work, shall be called upon immediately in the event of any fire, to rescue any person(s) who may become trapped or injured or otherwise affected or incapacitated by fire and to provide suitable, specialist and appropriate first aid and medical treatment. Without limiting the Contractor's obligations, the Particular Safety Specification shall describe the particular scope of fire prevention services that are to be provided by the Contractor for the Works. An appropriate pay item shall be included for this in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items, with unit for provision of facilities shown as "Sum" and unit rate/quantity for provision being shown as "month". If any facilities as required under the Contract or additional facilities as required by JSSS are not required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking Over Certificate then this shall be clearly specified in the Particular Safety Specification, items shall be listed with quantities and fully specified, otherwise all such facilities shall remain the property of the Contractor and shall be removed on or before the issue of the Taking Over Certificate.
3.0 Existing Underground, Concealed and Overhead Services	The Particular Safety Specification shall describe the required extent of any work required in connection with any existing Underground, Concealed or Overhead Services, with details and specification and this shall also be shown on the Drawings. If any such services are the property of the Employer, this shall be stated clearly and the route, size, purpose of each shall be described and shown. If services are to remain live and functional throughout the Time for Completion of the Works or if they are to be removed and if so by whom shall also be described. If any of these services are the property of a legally constituted public authority or a third party, this shall be stated clearly and the owner, route, size, purpose of each shall be described and shown. If it is to remain live and functional throughout the Time for Completion of the Works or if it is to be removed and if so by whom, (i.e. the authority or third party or the Contractor) shall also be described. The Particular Safety Specification shall also describe or include the procedures and requirements (including responsibility for insurance and safety procedures) of the authority or third party if the Contractor is to carry out the work.
GC 6.6 Facilities for Staff and Labour	The Particular Safety Specification shall describe any necessary accommodation and welfare facilities that the Contractor is to

JSSS Reference	Particular Safety Specification Requirements
	provide for the Contractor's Personnel and whether such facilities or further facilities are also to be provided for the Employer's Personnel and others. The Particular Safety Specification shall describe the required scope, design, constructional details and specification, whether temporary or permanent and this shall also be shown on the Drawings. If such facilities are required, the Particular Safety Specification shall describe in detail: (1) Responsibility and scope of maintenance, repair and cleaning of such facilities as necessary to maintain them in a clean, habitable, hygienic and safe condition, including garbage removal and disposal, rodent and insect control and the like. (2) Responsibility for and scope of potable water supply, water and power supply, waste water and sewage drainage and treatment. (3) Whether such facilities are required to be provided during the Defects Notification Period (4) Whether such facilities are to be removed by the Contractor or are to be handed over to the Employer on issue of the Taking Over Certificate and if so in what condition. The extent of provision by the Contractor shall take due account of the nature and location of the Site and the condition of access thereto, with a higher range and standard of facilities being provided in remote locations to promote good health, hygiene, comfort, welfare and safety of all users and occupants.
Other Items of Chapter 1 to review and include other Chapters of JSSS to review and incorporate	

Checklist still under consideration.

Yellow marking and red letters : Comments by NK (20200319)
DCI changes *and notes* (20200326)

Indicative Draft

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JICA STANDARD SAFETY SPECIFICATION FOR PROJECT IMPLEMENTATION UNDER JAPANESE ODA

USER GUIDE

Japan International Cooperation Agency (JICA)

_____, 2020

Prepared: DCI for NK
Issue: 1
Revision:
Date: 26/03/2020

JICA STANDARD SAFETY SPECIFICATION (JSSS)
USER GUIDE

Table of Contents

JICA STANDARD SAFETY SPECIFICATION (JSSS)
USER GUIDE

1.1. General

1.1.1. Purpose

(1) This User Guide is designed for the information and assistance of Executing Agencies and (where applicable) their consultants for use in the preparation of Bidding and Contract Documents and for the evaluation, award and implementation of Contracts, for Projects where such agencies have agreed with JICA to adopt JSSS.

(2) Definitions and abbreviations used in this User Guide are the same as used in JSSS.

(3) If the user has questions regarding the use of JSSS, the appropriate JICA's official should be consulted.

(4) This User Guide is an information document only which will not form a part of any Contract for the execution of any construction works.

1.1.2. Objective of JSSS

(1) As noted in JSSS, JICA requires that all parties engaged upon their ODA Projects shall endeavour to establish and maintain a culture ensuring human security and the maintenance of human rights as an essential and fundamental feature.

(2) The common objective shall be the achievement of a zero-accident rate on the Works, adopting the slogan of "Safety First" by creating a working environment where health and safety are of the highest priority.

(3) To assist with achieving this objective, JICA has published the JICA Standard Safety Specification (referred to as "JSSS"), which JICA wishes to be adopted for future selected Projects by the Executing Agencies for such Projects.

1.1.3. Effectiveness

JSSS has been published on-line by JICA. *Unless otherwise specifically agreed by the parties to the Loan Agreement for particular Projects, JSSS* ~~and it~~ shall become effective and used by Executing Agencies ~~for particular Projects *on the date that the Loan Agreement for that Project is executed and* where the parties to such Loan Agreement have formally and specifically agreed to adopt JSSS~~ as the technical basis for Health and Safety management on that Project.

1.1.4. Content

(1) JSSS specifies the minimum health and safety requirements to be complied with by the Contractor throughout the execution of the Works.

(2) JSSS contains general requirements for health and safety management with procedural requirements for the preparation, submission, review and response processes for Method Statements and Safety Plans for the safe execution of the Works, involvement of Employer, Engineer and other contractors, together with requirements for general administration and management of health and safety.

1.2. Application to Grant Aid and other Projects

1.2.1. General

(1) JSSS has been drafted to apply to JICA Loan Projects which are usually based upon the Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer, Multilateral Development Bank Harmonised Edition, June 2010.

(2) JSSS ~~shall~~ may apply equally to other JICA assisted Projects that have been awarded under different forms of contract including those under Contractor design contracts and contracts under the JICA Grant Aid programme. When so used, suitable modification

コメントの追加 [岡本1]: MD 氏はいみじくも言っているように first draft らしいので内容としてはまだ整っていない。

コメントの追加 [岡本2]: User's guide は入札図書の作成をする時の実施機関及びコンサルに対してのガイドなので、コントトラクターを対象とするものではない？

→それでいいんじゃないかと思います。要するに requirements をはっきりさせるためにはどうするかが User Guide に書いてあるはずで、はっきりしていればコントラクターは対応できるはずです。（伊藤）

コメントの追加 [岡本3]: L/A の時点で合意しなければ使用しなくてもいいように判断されるが、使用しないことを合意した以外は JSSS を強制するような記載ではどうか。

こんな感じで如何でしょう（伊藤）

コメントの追加 [岡本4]: Contractor だけではなく、Employer / Engineer も入れるべきでは。

（2）に少し形を変えて言及があるのでよいのではと思います（伊藤）

コメントの追加 [伊藤5]: Let's stay with "may" at this moment
not to trigger a civil war with the Grant aid people inside JICA....

コメントの追加 [岡本6]: これは結構無理かも

shall be required to the definitions and text of JSSS and the Bidding Documents for those Projects to ensure compatibility and consistency with the relevant contract requirements for the Project, reflecting the same intentions, standards and procedures for improving health and safety.

1.3. Incorporation of JSSS into Bids and Contracts

1.3.1. General

Unless otherwise specifically agreed by the parties to the Loan Agreement for particular Projects,~~Where the parties to a Loan Agreement have specifically agreed to adopt JSSS for a new Project~~, the Bidding Documents shall clearly state that ~~this and~~ Bids will be requested on the basis that JSSS is adopted~~this basis~~.

NK: SBD, Section II. Bid Data Sheet can be neither modified nor added new items, so we will delete the above (…state this with suitable addition to Section II. Bid Data Sheet and…). We consider the above sentence needs to be modified.

I have modified as above however, where in the Instructions to Bidders is this now to be stated? There should be no change to the Bidding Documents unless prescribed in the SBD.

I still think that it is necessary to update the SBD in future.

1.3.2. Safety Specification and Technical Specification

(1) JSSS shall be included as a part of the Specification for the Works as illustrated in the following Figure [*Incorporation of JSSS in Bid and Contract Documents*]. ~~JSSS shall be included as a part of t~~The Specification for the Works ~~, which~~ shall be subdivided into two parts namely:

(a) The Project Safety Specification (including JSSS), and

(b) other parts of the ~~The Technical~~ Specification which shall comprise the specification for the general and technical aspects of the Works, excluding requirements for health and safety.

(2) The Project Safety Specification shall consist of two (2) parts namely:

(a) Part 1: JICA Standard Safety Specification (JSSS):

Comprising JSSS as issued at the base date of the Contract

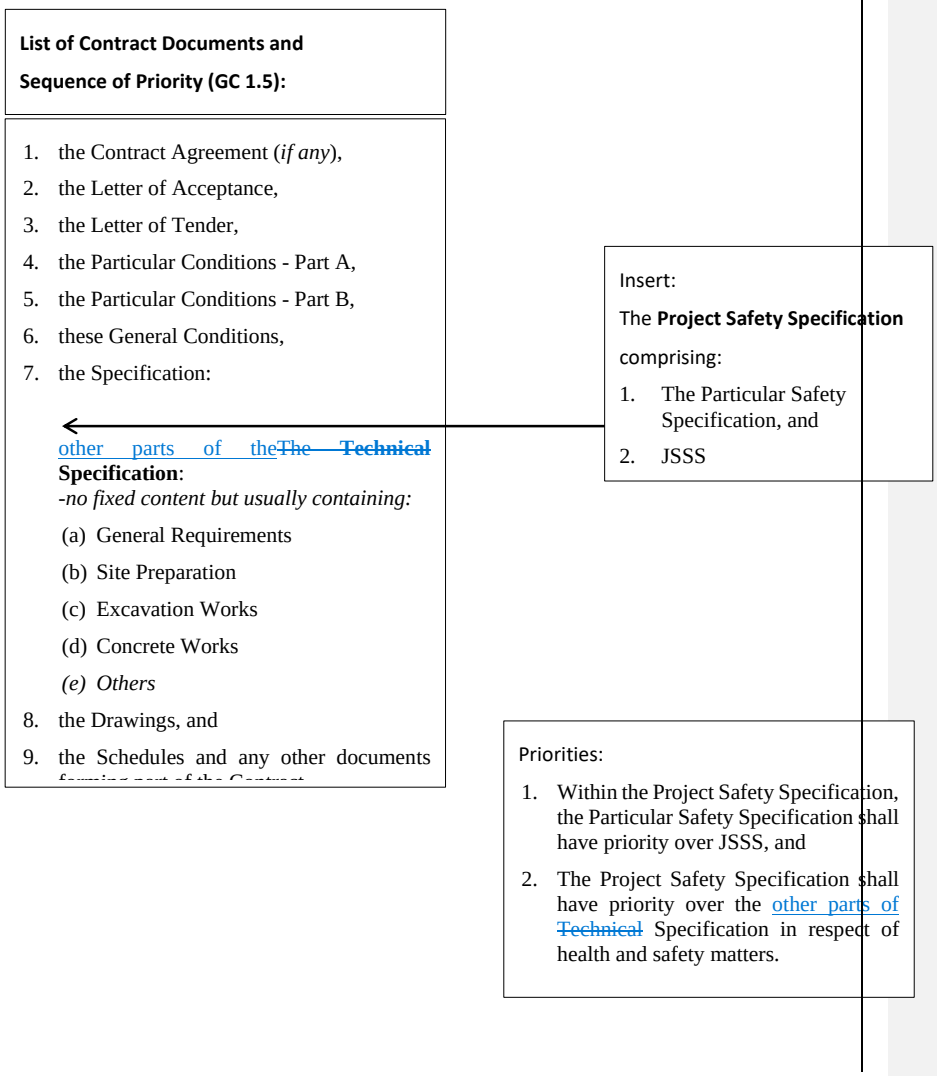
(b) Part 2: Particular Safety Specification:

Comprising a schedule containing the particular additions and modifications to JSSS, necessary to create a precise and relevant specification of the health and safety requirements for the Project. ~~required amendments to the various requirements of as necessary to create a clear and precise safety specification for the Works.~~.

(3) ~~The "Technical Specification" shall comprise the specification for the general and technical aspects of the Works, excluding requirements for health and safety.~~

コメントの追加 [伊藤7]: This is the same expression with the definition of PSS. The word "addition" is important.

Figure: Incorporation of JSSS in Bid and Contract Documents



~~(3)~~

1.3.3. Drafting of Particular Safety Specification

(1) JICA emphasise the importance of the Executing Agency assisting in the pursuit of a zero-accident rate on the Works, creating a safe working environment for the Works, by including for example: sufficient time for Bidding, reasonable Time(s) for Completion; reasonable, continuous and unobstructed access to the Site, detailed site information and sufficient ~~*Site*~~ *area(s) for the Site (including ,* working and storage areas), all wherever possible. Requirements shall be clearly described in the Bidding Documents.

NK: We considers it seems better to add "for the achievement of a zero-accident rate on the Works" to (1) .

OK added above and edited.

(2) As JSSS is a specification of minimum requirements for compliance by the Contractor, there shall be no substantial deletion or alteration of JSSS requirements in the Particular Safety Specification unless so justified due the scope of Works. *On the other hand, if the Project specific environment/context so requires, additional safety requirements shall be developed and included in the Particular Safety Specification.*

(3) Executing Agencies shall take care when they (or their consultants) prepare the Technical Specification and other parts of the Bidding Documents where JSSS is to be adopted, to ensure that there is no duplication of *or contradiction to* the health and safety requirements contained in the Project Safety Specification.

1.3.4. Composition and Priority of Specifications:

(1) The Project Safety Specification, together with the Technical Specification shall collectively form the "Specification" as defined in the Contract.

(2) For the purposes of interpretation, the priority of the documents forming the Specification shall be in accordance with the following:

(a) The "Project Safety Specification" shall have priority over other parts of the Specification in respect of health and safety requirements; and

(b) Within the "Project Safety Specification" the Particular Safety Specification shall have priority over JSSS.

(3) If an ambiguity or discrepancy is found in the documents, the Engineer shall issue any necessary clarification or instruction.

1.3.5. Ongoing Projects

(1) Unless otherwise agreed between JICA and the Executing Agency, JSSS shall not be automatically used on all JICA funded Projects, JSSS shall only be used when it becomes effective on the particular ODA Project as described in this User Guide 1.1.3 [*Effectiveness*].

(2) Where JSSS is already in use on any Project and by further agreement between JICA and the Executing Agency, future issues/revisions of JSSS may be applied after the date that such future issues/revisions are published on line subject to issue by the Engineer of an appropriate Variation under GC 13.1 [*Right to Vary*].

1.3.6. JICA Standard Bidding Documents

(1) JICA intend to amend and re-issue the "Standard Bidding Documents Under Japanese ODA Loans, Procurement of Works", published by the Japan International Cooperation Agency (JICA) (hereinafter referred to as "JSBD") to cover the required amendments to accommodate JSSS.

コメントの追加 [伊藤8]: modified to be in conformity with the definition in FIDIC.

コメントの追加 [岡本9]: 契約の履行中の up-date は実際的ではないので、at the Base Date とすべきと思量。

まあ、may になっているからいいような気もしますが・・（伊藤）

(2) In order that JSSS can be used without delay on particular Projects, the Bidding Documents for such Projects shall be drafted to take account of the above and following amendments in advance of the publication of the next issue of JSBD.

コメントの追加 [伊藤10]: Let's keep this and 1) to 3) below.

NK: The amendment to JSBD is not necessary as the PC is not amended related with JSSS now. We consider the above (1) and (2) can be deleted and propose to replace them with the following if appreciate:

To make the Project Safety Specification as one of Bidding Documents, it shall be included as a part of Specification described in Section VI. Works Requirement of Standard Bidding Documents Under Japanese ODA Loans, Procurement of Works", published by the Japan International Cooperation Agency (JICA) (hereinafter referred to as "JSBD").

Yes, I fully understand this however this is not PC it is the Instructions to Bidders (ITB).

I had prepared appropriate information in the earlier Issue 6 (please refer to Annex 1.3 Required Amendments to JICA Standard Bidding Documents) but JICA have deleted this and instructed that no change in SBD is to be suggested.

We have dealt with PC in a manner which should probably be OK but the document is silent on ITB, and some thought needs to be given to this.

The following needs some mention:

1) The form of "Safety Plan" in Section IV. Bidding Forms shall include an explanatory note to the Bidders to inform them that they shall submit a safety plan in their bid in accordance with ~~Section IV. Bidding Forms BF-39, SBD page 173 requires improvement by copy pasting the content of~~ Annex 1.2 of JSSS "Bid Stage Safety Plan".

2) HSO shall be specified as one of the Key personnel to be evaluated in Section III. Evaluation and Qualification Criteria ~~e.g. SBD page 110 items 1.1.1, needs change to included reference to HSO~~.

3) Bidders Safety Declaration shall be added in Section IV Bidding Forms~~requires some instruction as to where in the Bid forms, this is to be included~~.

コメントの追加 [伊藤11]: JICA may time to time bring "mini-update" into our SBD. So, we prefer not to mention the concrete page number, which may be changed.

I suggest it is better if the above is left in for now so that this can be discussed between JICA and NK.

1.4. The Particular Safety Specification

1.4.1. General

(1) The Particular Safety Specification shall be carefully and precisely drafted by amending the various general requirement clauses of JSSS by adding particular requirements to ensure that the scope is precisely specified so that the Contractor's obligations are clear and unambiguous.

(2) The amendments shall cover the examples listed below, noting that this listing is not exhaustive.

(3) Any reference to "the Particular Safety Specification" shall mean that either full requirements are required to be stated in the Particular Safety Specification or that reference is to be made in that specification to parts of the Technical Specification or other documents comprised in the Contract, where full requirements are stated.

コメントの追加 [岡本12]: Not very clear. Would you rephrase?

Still Under consideration by DCI:

(4) A check list shall be included at the beginning of the Particular Safety Specification, in this User Guide which shall list all of the clauses in the following table, state briefly what action has been taken and also indicate where full requirements are stated.

NK: The Check list may be helpful for the Employer to understand and avoid missing items.

Yes but it is also necessary for us to prepare the detail first and then decide if it is good idea to give the Employer an easy option.

This was originally designed by is to allow JICA to check whether changes had been incorporated properly but this is not the case and there appears to be little point in preparing a check list if nobody is checking.

1.4.2. JSSS Items to be Considered for the Particular Safety Specification.

The following table still requires our further coordination with all other chapters of JSSS. Further editing and addition is necessary and all clause numbering and descriptions ultimately require to be coordinated and updated

JSSS Reference	Particular Safety Specification Requirements
~~*1.4.10 Compliance with JSSS and Other Regulations*~~	~~*The Contractor's obligations to provide temporary services and facilities generally finish at the end of the Time for Completion plus any additional period(s) within the Defects Notification Period (DNP) when the Contractor may be completing any outstanding work or remedying any defective work. If for any reason the Contractor is required to maintain a further presence at the Site during the DNP, this shall be clearly stated in the Particular Safety Specification together with the reasons, scope and duration of such presence.*~~ ~~*Suitable facility for pricing shall also be included in* **Section IV. Bidding Forms, Bill of Quantities**, *Bill No. 1: General Items, with unit rate for provision being shown as "month".*~~ ~~*The method of payment to the Contractor shall also be specified*~~
~~*1.10 Engineer's Safety Representative*~~	~~*The Particular Safety Specification shall state if the Engineer will appoint a full-time Safety Representative as an assistant upon the Works.*~~ ~~*If no such requirement is specified in the Particular Safety Specification it is to be assumed that the Engineer or a duly authorised assistant shall act in a part-time capacity.*~~
1.12 Health and Safety Officer at the Site (HSO)	The general basis JSSS is that the HSO is required to be assigned full-time upon the Works and to spend all of his time on health and safety management. JICA advise that full-time assignment is the normal requirement and part-time or shared assignment is only allowable on extremely small Projects or when *part-time or shared assignment is justified with particular reasons*~~separate written justification has been provided by the Executing Agency to JICA~~. In addition to stating as above, facility for pricing the cost of HSO shall be included in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items, to "Provide HSO and staff" with unit rate for provision being shown as "month". Quantity in months shall be of the required period for provision which will usually be the Time for Completion and any allowance as required during the Defects Notification Period. *NK: We think this shall be recorded in the Minutes of Discussion at JICA appraisal time.*

コメントの追加 [伊藤13]: Please see our comments to JSSS 1.4.10.

コメントの追加 [伊藤14]: Please see our comment in JSSS 1.10.

コメントの追加 [岡本15]: ？？

コメントの追加 [伊藤16]: safety staff のアサインメントの BOQ 上への掲載の方法はこれでよいか？ DNP 期間中の対応まで BOQ で対応するでアイテムを別建てした方がよいかは疑問？

JSSS Reference	Particular Safety Specification Requirements
	NK: May we know what facility do you expect? For example, transportation for HSO and his staff? *By "facility": we mean allowing the Bidder the facility for pricing this requirement in his bid.* *Please let me know if you think we need to state facilities.*
1.21 Skill Training	The Particular Safety Specification shall state whether classroom-based skill training of counterpart Operation Leaders is, or is not, required. The Contractor shall be expected in any event to be provide OJT via his senior personnel to local counterparts. The Particular Safety Specification shall state whether the Contractor is allowed to bring into the Country for use upon the Works any unqualified, unskilled or inexperienced foreign Contractor's Personnel. If skill training is required, the Particular Safety Specification shall state how many candidates shall be selected, for which skill groups and for how long. This shall be determined by the scope and nature of the Works. The Particular Safety Specification shall specify for example: (1) Requirements for classrooms and whether these can be of the Contractor's office facilities at the Site. (2) Requirements for training facilities (for example furniture, equipment, computers, sample tools and working equipment, other teaching aids and the like). (3) Requirements for teachers. (4) If classroom lessons are to be full-time or part-time ~~*(5) That candidates shall be paid their full wages and allowances during teaching time.*~~ ~~(6)~~(5) That the Contractor shall design syllabi to compliment the candidates' skill group, their work and position at the Site. ~~(7)~~(6) In addition to skill training, syllabi shall include health and safety training to an international level of appreciation with a general introduction to OSHA and other international safety standards and regulations. ~~(8)~~(7) Requirements for testing of candidates for example that the Contractor shall test candidates upon completion of their course, prepare and issue certificates of attendance and successful completion of each course. *NK: We have an opinion that such details as (1) to (8) are necessary to specify by the Employer.* *Yes that is the requirement.* In addition to stating as above and if there is a requirement for such classroom-based skill training, appropriate pay items shall be

コメントの追加 [岡本17]: もし、当該国で熟練工がいない場合に、コントラクターが local workers を教育する際の記載？でしょうか。コントラクターの基本的な考えは熟練工がいなければ三国人 worker の許可を出して欲しいということ。従ってこの記載は三国人 worker が制限された場合の記載であるべき。

コメントの追加 [伊藤18]: This is already stated in JSSS 1.19.3. So, no need to be mentioned in Particular Safety Spe.cification

コメントの追加 [岡本19]: OSHA を教育できる人材はそれほどいない。そうではなくてコントラクターが採用した Safety Mangaement System を教育するのではないか。

JSSS Reference	Particular Safety Specification Requirements
	included for each of the above in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items for: Assignment of Operation Leaders as teachers: Unit: man-month Quantity: Total estimated man-months Use of Training Facilities: Sum If any Training Facilities are to be handed to the Employer or training aids given to candidates, then these shall be clearly specified in the Particular Safety Specification, items shall be listed with quantities given, otherwise all such Training Facilities shall remain the property of the Contractor and shall be removed on completion. *NK: May we know the meaning of "issued to candidates" or describe in other words?* *e.g. notebook computers, books, training and aids, I have rephrased*
1.22.7 Rescue teams and equipment	*NK: The requirement for rescue teams and rescue equipment shall be specified.* *Not in this case this is for Dangerous Work for which the Contractor shall be responsible for this to ensure the safety of his workers*.
1.22.12 Hazardous Substances	~~After following Site survey and investigation,~~If it is considered that there is any likelihood of the existence of Hazardous Substances at the Site of the Works or in any existing buildings and structures, ~~or in the Works, then this shall be stated in the Particularly Safety Specification and~~ the Employer's requirements for removal and disposal by the Contractor shall be stated.
1.24 Accident Response Plan	Although the Contract places obligations upon the Contractor under GC6.7 [Health and Safety], the Particular Safety Specification shall include a listing and description of any particular services and facilities that the Contractor is required to provide at the Site in addition to those already described in the *Conditions of* Contract. This is particularly relevant where the Site is located at an excessive distance from urban areas and/or where there is a lack of immediate availability of medical facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel and Employer's Personnel and all other persons who are entitled to be on the Site and other places (if any) where the Works are being executed. The circumstances shall be investigated by Executing Agencies and their consultants during the design stage and full requirements shall be clearly described in the Bidding Documents.

コメントの追加 [岡本20]: NK の言っていることがしっくりくる。MD 氏は Rescue Team を創設して当然と考えているが、そのような例はないのでは。―それくらい特殊だと思う。

1.22.8 が削除されるならばこの Particular も不要。（伊藤）

コメントの追加 [伊藤21]: Works の中に Hazardous Substances が存在するということはあり得るのか？

JSSS Reference	Particular Safety Specification Requirements
	NK: There are same phrase of "described in the Contract". May it be modified? *Please let me consider later, this is still very much an early draft, see also above change.* *Normally it would be in the Bidding documents so that the bidder can price for it.* Such additional facilities at the Site could for example include: (1) Enhanced medical staff with qualified doctor(s). (2) Enhanced first aid and treatment facilities and staff. (3) Enhanced medical equipment, medical supplies, medicines and drugs. (4) Additional treatment and recovery rooms. (5) An equipped ambulance based at the Site with qualified driver and attenders. (6) Where transfer time by road can exceed one (1) hour, emergency air-ambulance evacuation services, shall also be considered in addition to the above. (7) Above available 7 days per week, 24 hours per day or during the normal working hours stated in the Contract Data, etc. The Particular Safety Specification shall state whether the medical, first aid and related services and facilities at the Site are to be available for during the normal working hours stated in the Contract or for any longer times. If any facilities as required under the Contract or additional facilities as required by JSSS are not required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking Over Certificate then this shall be clearly specified in the Particular Safety Specification, such items shall be listed with quantities and fully specified, otherwise all such facilities shall remain the property of the Contractor and shall be removed on or before the issue of the Taking Over Certificate. The Particular Safety Specification shall also state whether the medical, first aid and related services and facilities at the Site for accidental injuries (or more) shall also be made available and whether free of charge or not to any accompanying family members of the Contractor's Personnel, the Employer's Personnel and the family members of any other persons who are entitled to be on the Site and other places (if any) where the Works are being executed. In addition to stating as above, if there is a requirement for such additional facilities, appropriate pay items shall be included for each of the above in Section IV. Bidding Forms, Bill of Quantities, Bill No. 1: General Items, with unit for provision of facilities shown as "Sum" and unit rate/quantity for provision being shown as "month".

コメントの追加 [岡本22]: Safety facility を TOC 以降発注者が引き受けることは Default としては考える必要性はないと思量。

最後の otherwise 以下はおかしい。DNP 期間中とて補修作業のために必要なものはあるはず（伊藤）

JSSS Reference	Particular Safety Specification Requirements
	Quantity in "months" shall be of the required period for provision which will usually be the Time for Completion and any required time during the Defects Notification Period.
1.26 Emergency Response Plan	In locations where there is a risk of flooding, earthquake, volcanic or similar activity, the Contractor is required to take measures under JSSS 1.27 for basic emergency response. If t~~T~~he Employer ~~may~~ requires additional measures, ~~and if so~~ these shall be stated in the Particular Safety Specification. These may include for example a requirement of the Contractor to establish, train and maintain a specialist team at the Site to assist in the event of an emergency and the provision of specialist equipment. In such cases, the Particular Safety Specification shall specify whether this is required, details of personnel and equipment to be provided so that the Contractor is made fully aware and is able to assess the extent, risk and cost of the requirements. An appropriate pay item shall be included for this in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items, with unit for provision of facilities shown as "Sum" and unit rate/quantity for provision being shown as "month".
1.29 Project Safety Committee	*(On large Projects with multiple contract packages and contractors)* The Particular Safety Specification shall state if a Project Safety Committee is to be established for the Project and describe any further requirements.
1.30 Health and Safety Coordination with Other Contractors, refer also to GC 2.3 [*Employer's Personnel*]	The Particular Safety Specification shall describe the individual scope of Works for any other contractors to be employed by the Employer on the Site and where possible identify them by name. Also list any legally constituted public authorities who may be employed in the execution on or near the Site of any work not included in the Contract, and specify scope, working locations, access and timing as far as possible.
1.36 Health Matters	Although the Contract places obligations upon the Contractor under GC6.7 [*Health and Safety*], the Particular Safety Specification should include a listing and description of any particular services and facilities that the Contractor is required to provide at the Site for health control in addition to those already described in the Contract. The listing should also include furniture and equipment for rest stations, restroom, dining facilities, canteens, sanitary facilities, recreational facilities, shower facilities, changing rooms and the like together with a description of any requirements for use and for example whether facilities can be used by the Employer's Personnel and their families.

コメントの追加 [岡本23]: 地震などの非常時の消防隊を設置するようなものだが、現実的とは考えられない。

What is supposed by the expression " assist in the event of…."? In case of emergency like earthquake or volcanic activities, the Contractor cannot do a lot of things, but stop working and evacuating.
We are afraid that with this drafting, the Contractor would be required to take "excessive" actions (e.g. firefighting at the time of volcanic activities???). How is the nuance of this drafting???

JSSS Reference	Particular Safety Specification Requirements
	This is particularly relevant where the Site is situated some distance away from urban areas and/or where there is a lack of immediate availability of suitable medical facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel, to compensate for any lack of available services or facilities or lack of any local health authorities. The circumstances shall be investigated by Executing Agencies and their consultants during the design stage and full requirements shall be clearly described in the Bidding Documents. Consideration as to whether assignment of healthcare staff is required to be full time or part time In addition to stating as above, if there is a requirement for such additional facilities, appropriate pay items shall be included for each of the above in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items, with unit for provision of facilities shown as "Sum" and unit rate/quantity being shown as "month". Quantity in "months" shall be of the required period for provision which will usually be the Time for Completion and any required time during the Defects Notification Period. If any facilities as required under the Contract or additional facilities as required by JSSS are not required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking Over Certificate then this shall be clearly specified in the Particular Safety Specification~~, *items shall be listed with quantities and fully specified, otherwise all such facilities shall remain the property of the Contractor and shall be removed on or before the issue of the Taking Over Certificate*~~.
1.37 Design and Management of Temporary Works	As a standard requirement, the Particular Safety Specification shall require Bidders to comply with BS5975 (latest issue) or approved equivalent for the design and management of Temporary Works. If Bidders are NOT required to comply with BS5975, the Particular Safety Specification shall state this and also state that Bidders are to comply in any event with the specified requirements of JSSS 1.37 and submit full details in the Safety Plan.
~~1.38 User Training~~	~~The Particular Safety Specification shall state whether User Training of Employer's Personnel is required so that the Works or any part or Section thereof can be used, operated and maintained in a safe manner.~~ ~~If it is required, the Particular Safety Specification shall modify or add to the requirements of JSSS 1.38 [*User Training*] and state the precise requirements including details of required training, numbers of candidates and duration of training.~~

コメントの追加 [伊藤24]: ？？？
The sentence is incomplete.

JSSS Reference	Particular Safety Specification Requirements
	~~This shall be determined by the scope and nature of the Works and the number of users, management staff, operators, maintenance staff who will be engaged upon the Works.~~ ~~The Particular Safety Specification shall state whether lessons will be full-time or part-time.~~ ~~The Contractor shall design syllabi to compliment the training courses and in addition to user training, syllabi shall include health and safety training to an international level of appreciation with a general introduction to OSHA and other international safety standards and regulations. The Contractor shall test candidates upon completion of their course, prepare and issue certificates of attendance and successful completion of each course.~~ ~~In addition to stating as above and if there is a requirement for such user training, appropriate pay items shall be included for each of the above in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items for:~~ ~~Assignment of teachers for user training~~ ~~Unit: man-month Quantity: Total estimated man-months~~ ~~Provision and use of Training Facilities: Sum~~ ~~If any Training Facilities are to be handed to the Employer or issued to candidates, then this shall be clearly specified in the Particular Safety Specification, items shall be listed with quantities and fully specified, otherwise all such Training Facilities shall remain the property of the Contractor and shall be removed on completion.~~
1.39 Unexploded Ordnance	If there is a possibility that any UXO may exist at the Site, then this shall be surveyed and investigated by the Employer before Bids are requested and the result of this investigation shall be clearly stated and full information including survey and investigation results shall be provided by the Employer in the Particular Safety Specification. Clearance of UXO shall be undertaken by the Employer as a condition precedent to commencement under GCC 8.1 [*Commencement of Works*], at the cost of the Employer and carried out by specialist government organisations, forces or contractor(s) that are appropriately and specifically qualified, skilled and experienced in the safe and environmentally acceptable removal and disposal of UXO, engaged directly by the Employer. Completion of clearance shall be evidenced through the issue by the Employer's specialist remover of a certificate of UXO clearance from the Site area. A copy of this certificate shall be provided to the Engineer and the Contractor. No work shall commence at the Site until the receipt of a by the Engineer and Contractor of a copy of this certificate. Should the Contractor encounter any UXO, after a clearance certificate has been issued in accordance with the above, he shall immediately stop all affected work at Site, clear the area of all

JSSS Reference	Particular Safety Specification Requirements
	Contractor's Personnel, Employer's Personnel and all other persons and notify the Engineer and relevant authorities. Unless otherwise agreed between Employer and Contractor, the Employer shall then make further arrangements for removal and disposal, then obtain and issue a further clearance certificate. Work shall resume in the affected areas after the Contractor has received a copy if the further clearance certificate together with any further instructions from the Engineer.
2.1 Work Environment Other Dangerous Work	If the scope of Works includes any other Dangerous Work, as defined in JSSS Annex 1.1 [*Definitions and Abbreviations*], this shall be stated and full details provided of all likely hazards in the Particular Safety Specification. For any work to be perform in Operational Areas, the time(s) and conditions of operation shall be described together with any restrictions on the Contractor's working methods, times and arrangements shall be further described in detail. The respective responsibilities for insurance, health and safety management, security, health and welfare facilities, etc., between the Employer and Contractor(s) shall be clearly described so that there is no doubt over what each party is to perform or provide. A copy of the Employer's working procedures, including their health and safety procedures shall be provided to Bidders for their study during the Bidding period.
2.2 Risk Control Around the Site Site Perimeter Fencing:	The Particular Safety Specification shall describe the required Site Perimeter fencing showing the extent, dimensions, constructional details and specification, whether temporary or permanent. This shall also be shown on the Drawings. Requirements for permanent or temporary fencing or barriers within the Site shall be described and shown for example around areas where Dangerous Work is being carried out. Gates, barriers and other measures at Site entrances shall be described together with any arrangements for communications, lighting and power supply. Requirements for security at the Site entrance and also around the Site shall be described and whether this is to be provided by the Contractor or the Employer.
2.8 Fire Prevention	Although the Contract places obligations upon the Contractor for care of the Works, the Particular Safety Specification should include a listing and description of any particular fire-fighting and rescue services and facilities that the Contractor is required to provide at the Site. This is particularly relevant where the Site is situated some distance away from urban areas and/or where there is a lack of immediate availability of suitable fire-fighting and rescue facilities, or where

コメントの追加 [伊藤25]: This must be relevant as guidance to the Employer. But not as Particular specification???

コメントの追加 [岡本26]: この要請は行き過ぎと考える。
消防車、消防隊２４時間待機は無理。

JSSS Reference	Particular Safety Specification Requirements
	such facilities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel, to compensate for any lack of available services or facilities or lack of any local health authorities. The circumstances shall be investigated by Executing Agencies and their consultants during the design stage and full requirements shall be clearly specified in the Particular Safety Specification. Such additional facilities at the Site could for example include: (1) An equipped fire engine based at the Site with qualified driver and crew selected from the workers at the Site. (2) Sufficient temporary water and power supply to maintain emergency use. (3) Additional PPE for the fire-fighting and rescue team. (4) Enhanced fire protection equipment and facilities around the Site. (5) Above available 7 days per week, 24 hours per day or during the normal working hours stated in the Contract Data, etc. Where applicable, details shall be provided in the Particular Safety Specification for the selection, training and equipping of emergency fire-fighting teams selected from existing Contractor's Personnel at the Site, who in addition to their normal work, shall be called upon immediately in the event of any fire, to rescue any person(s) who may become trapped or injured or otherwise affected or incapacitated by fire and to provide suitable, specialist and appropriate first aid and medical treatment. Without limiting the Contractor's obligations, the Particular Safety Specification shall describe the particular scope of fire prevention services that are to be provided by the Contractor for the Works. An appropriate pay item shall be included for this in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items, with unit for provision of facilities shown as "Sum" and unit rate/quantity for provision being shown as "month". If any facilities as required under the Contract or additional facilities as required by JSSS are not required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking Over Certificate then this shall be clearly specified in the Particular Safety Specification, items shall be listed with quantities and fully specified, otherwise all such facilities shall remain the property of the Contractor and shall be removed on or before the issue of the Taking Over Certificate.
3.0 Existing Underground,	The Particular Safety Specification shall describe the required extent of any work required in connection with any existing

JSSS Reference	Particular Safety Specification Requirements
Concealed and Overhead Services	Underground, Concealed or Overhead Services, with details and specification and this shall also be shown on the Drawings. If any such services are the property of the Employer, this shall be stated clearly and the route, size, purpose of each shall be described and shown. If services are to remain live and functional throughout the Time for Completion of the Works or if they are to be removed and if so by whom shall also be described. If any of these services are the property of a legally constituted public authority or a third party, this shall be stated clearly and the owner, route, size, purpose of each shall be described and shown. If it is to remain live and functional throughout the Time for Completion of the Works or if it is to be removed and if so by whom, (i.e. the authority or third party or the Contractor) shall also be described. The Particular Safety Specification shall also describe or include the procedures and requirements (including responsibility for insurance and safety procedures) of the authority or third party if the Contractor is to carry out the work.
GC 6.6 Facilities for Staff and Labour	The Particular Safety Specification shall describe any necessary accommodation and welfare facilities that the Contractor is to provide for the Contractor's Personnel and whether such facilities or further facilities are also to be provided for the Employer's Personnel and others. The Particular Safety Specification shall describe the required scope, design, constructional details and specification, whether temporary or permanent and this shall also be shown on the Drawings. If such facilities are required, the Particular Safety Specification shall describe in detail: (1) Responsibility and scope of maintenance, repair and cleaning of such facilities as necessary to maintain them in a clean, habitable, hygienic and safe condition, including garbage removal and disposal, rodent and insect control and the like. (2) Responsibility for and scope of potable water supply, water and power supply, waste water and sewage drainage and treatment. (3) Whether such facilities are required to be provided during the Defects Notification Period (4) Whether such facilities are to be removed by the Contractor or are to be handed over to the Employer on issue of the Taking Over Certificate and if so in what condition. The extent of provision by the Contractor shall take due account of the nature and location of the Site and the condition of access thereto, with a higher range and standard of facilities being provided in remote locations to promote good health, hygiene, comfort, welfare and safety of all users and occupants.

JSSS Reference	Particular Safety Specification Requirements
Other Items of Chapter 1 to review and include other Chapters of JSSS to review and incorporate	

Checklist still under consideration.

DCI: Issue 2 additional or changed text
DCI: Issue 2 comments

Notes to NK;

The statement that the User Guide does not form a part of the Contract has been omitted in Chapter1 by J(CA and I have been asked not to comment on this.

I have provided a note there for NK information, which I repeat here

I felt that the omitted note was important and intended to limit risk for JICA.

> *"The deletion is shaded in blue so I must not comment.*
>
> *The biggest user of JSSS is actually the Contractor, and if it is published at the same time as the User Guide on the same JICA website the contractor will refer to it and this could create future problems.*
>
> *Future claims from contractors can be predicted on this for example that the Bid documents have not been prepared properly according to the User Guide or that the full information (for example required by User Guide clause 1.3.3) has been not been provided or has been withheld. Whether such claims are insupportable under the contract or not, they must still be defended and this takes time and money usually which JICA pay.*
>
> *JSSS 1.3.4 was intended to very simply prevent this but it has been deleted and I have been asked not to comment, so what can I do?*
>
> *After further consideration on this subject and as advised in my last comment of Annex 1, I also suggest that it is better to rename the "User Guide", for example as the "Guide for Use of Executing Agencies", it is more correct and may reduce the risk of claim even though it will not solve this problem fully."*

I have therefore re-titled this document as "Guide for Use of Executing Agencies" for the above reasons

I have also confirmed in this document, that it does not form a part of any contract.

JICA STANDARD SAFETY SPECIFICATION FOR PROJECT IMPLEMENTATION UNDER JAPANESE ODA

GUIDE FOR USE OF EXECUTING AGENCIES

Japan International Cooperation Agency (JICA)

_____, 2020

Prepared: DCI for NK
Issue: 2
Revision:
Date: 26/05/2020

JICA STANDARD SAFETY SPECIFICATION (JSSS)
GUIDE FOR USE OF EXECUTING AGENCIES

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JICA STANDARD SAFETY SPECIFICATION (JSSS)
GUIDE FOR USE OF EXECUTING AGENCIES

1. GENERAL

NK:

Note on numbering.

Please note that in this guide, there are cross references to other clauses within the guide and cross references also to JSSS clause numbers. I had thought that as a similar numbering system is used in both documents, there may be duplication and referencing errors, however there is no great level of cross reference and as this has always been made to "JSSS 1.22" or "GC 34", I think that there is no need for different numbering.

1.1 Purpose

(1) This guide is prepared and issued for the information and assistance of Executing Agencies and (where applicable) their consultants for use in the preparation of Bidding and Contract Documents for Projects where such agencies have agreed with JICA that JSSS shall be adopted.

(2) Definitions and abbreviations used in this guide shall be the same as in JSSS.

(3) Reference to "Executing Agencies" in this guide shall be deemed to include their consultants which have been appointed to provide design stage services in accordance with JICA requirements.

(4) If the user has questions regarding the use of JSSS, the appropriate JICA's official should be consulted.

(5) This guide is for information only and will not form a part of any Contract for the execution of any Works.

1.2 Objective of JSSS

(1) As noted in JSSS, JICA requires that all parties engaged upon their ODA Projects shall endeavour to establish and maintain a culture ensuring human security and the maintenance of human rights as an essential and fundamental feature.

(2) The common objective shall be the achievement of a zero-accident rate on the Works, adopting the slogan of "Safety First" by creating a working environment where health and safety are of the highest priority.

(3) To assist with achieving this objective, JICA has published the JICA Standard Safety Specification (referred to as "JSSS"), which JICA wishes to be adopted for future selected Projects by the Executing Agencies for such Projects.

1.3 Effectiveness

JSSS has been published on-line by JICA. *Unless otherwise specifically agreed by the parties to the Loan Agreement for particular Projects, JSSS* ~~and it~~ shall become effective and used by Executing Agencies ~~for particular Projects *on the date that the Loan Agreement for that Project is executed and* where the parties to such Loan Agreement have formally and specifically agreed to adopt JSSS~~ as the technical basis for Health and Safety management on that Project. (JC2)

JC2: We modified so that JSSS would be enforced to the Project unless agreed by JICA and executing agency not to apply JSSS at the time of L/A.

NK: I have no comment. Please review this modification.

In principle, I suggest that JSSS can only be applied when it offers a higher standard of safety than any local laws and regulations (which do often exist) and then only if specifically agreed between Government, Executing Agency and JICA before Loan Agreement is finalised.

I feel that the incorporation of JSSS must be clearly agreed and specifically agreed that it can and will be used not assumed as a default according to your proposed amendment. Otherwise it may be established during implementation that local laws and regulations do exist and must then take legal priority over JSSS in full or in part, thereby complicating the effectivity.

In some cases, it may be necessary for loan recipient governments to a enact a further local law to ensure that where local laws or regulations are found to exist, JSSS will prevail and apply on the particular Project as an agreed term of the Loan.

Otherwise I can only rely on JICA advice of their intentions for implementation and effectiveness and therefore have no further comment.

1.4 Content

(1) JSSS specifies the minimum health and safety requirements to be complied with by the Contractor throughout the execution of the Works.

(2) JSSS contains general rules for health and safety management with procedural requirements for the preparation, submission, review and response processes for Method Statements and Safety Plans to encourage the safe execution of the Works. JSSS further describes the involvement of Employer, Engineer and other contractors, and provides requirements for general administration and management of health and safety.

1.5 Application to Grant Aid and other Projects

(1) JSSS has been drafted to apply to JICA Loan Projects ~~which are usually~~ based upon the Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer, Multilateral Development Bank Harmonised Edition, June 2010.

Suggest deletion gives better wording

(2) JSSS ~~shall~~ may (JC2) (apply equally to other JICA assisted Projects that have been awarded under different forms of contract ~~including those under Contractor design contracts and contracts under the JICA Grant Aid programme.~~ (JC2)When so used, suitable modification shall be made ~~required~~ to the definitions and text of JSSS and the Bidding Documents for those Projects to ensure compatibility and consistency with the relevant contract requirements for the Project, reflecting the same intentions, standards and procedures for improving health and safety.

JC2: Let's stay with "may" at this moment, not to trigger a civil war with the Grant aid people inside JICA....

NK: I think it is better to delete "including those under Contractor design contracts and contracts under the JICA Grant Aid programme." to avoid unnecessary conflict in JICA.

Yes, I agree with the possible exclusion of Grant aid projects in this way.

However, please note that some of the major ODA projects funded by JICA and at high risk of accident (including for example Jakarta and other MRT projects) are executed on the FIDIC Yellow Book Conditions of Contract for Contractor design.

I think that JSSS could be reasonable easy to adapt for use with FIDIC Yellow book.

It would be a missed opportunity if these major inner-city infra. projects are not to be brought within the coverage of JSSS and there is no real reason why they should or could not be covered.

I suggest that JICA may wish to retain the wording "that have been awarded under different forms of contract including those under Contractor design contracts" and maybe also leave this as "shall" and not "may".

Suggest change improves the wording

1.6 Incorporation of JSSS into Bids and Contracts

Unless otherwise specifically agreed by the parties to the Loan Agreement for particular Projects, ~~Where the parties to a Loan Agreement have specifically agreed to adopt JSSS for a new Project~~, the Bidding Documents shall clearly state that ~~this and~~ Bids will be requested on the basis that JSSS is adopted~~this basis~~. (JC3)

NK: SBD, Section II. Bid Data Sheet can be neither modified nor added new items, so we will delete the above (…state this with suitable addition to Section II. Bid Data Sheet and…). We consider the above sentence needs to be modified.

I have modified as above however, where in the Instructions to Bidders is this now to be stated? There should be no change to the Bidding Documents unless prescribed in the SBD.

I still think that it is necessary to update the SBD in future.

JC3: Modified as above.

See comment against 1.1.3 above, otherwise no further comment.

1.7 Structure of Specification ~~and Technical Specification~~

If the creation of and reference to Technical Specification is to not to be adopted, then the heading requires change also.

(1) JSSS shall be included as a part of the Specification for the Works as illustrated in the following Figure 1.1 [*Incorporation of JSSS into Bid and Contract Documents*]. ~~JSSS shall be included as a part of t~~The Specification for the Works , ~~which~~ shall be subdivided into two parts namely: (JC4)

(a) The Project Safety Specification (including JSSS); and

(b) other parts of the ~~The Technical~~ Specification which shall comprise the specification for the general and technical aspects of the Works, excluding requirements for health and safety. (JC4)

JC4: Modified as above.

Please note that the introduction of "Technical Specification" created two distinctly separate parts to the "Specification", namely the Particular Safety Specification and the Technical Specification.

The change to "Project Safety Specification" and "other parts of the Specification" is no longer two "parts" it implies that there are more than two "parts" and is therefore less clear.

It may also somehow complicate the priority of documents:

As written was clear:

2. The Project Safety Specification shall have priority over the Technical Specification in respect of health and safety matters.

As revised is less clear as the "the Specification" already includes the Project Safety Specification of which it (and JSS) is already a part and the PSS cannot have priority over itself:

2. The Project Safety Specification shall have priority over the other parts of the Specification in respect of health and safety matters.

(2) The Project Safety Specification shall consist of two parts namely:

(a) Part 1: JICA Standard Safety Specification (JSSS):

Comprising JSSS as issued at the base date of the Contract

(b) Part 2: Particular Safety Specification:

Comprising a schedule containing the particular additions and modifications to JSSS, necessary to create a precise and relevant specification of the health and

safety requirements for the Project. ~~required amendments to the various requirements of as necessary to create a clear and precise safety specification for the Works.~~. (JC5)

(3) ~~The "Technical Specification" shall comprise the specification for the general and technical aspects of the Works, excluding requirements for health and safety.~~ (JC5)

JC5: Modified as above because this is the same expression with the definition of PSS. The word "addition" is important.

No comment

Figure 1.1: Incorporation of JSSS into Bid and Contract Documents

List of Contract Documents and Sequence of Priority (GC 1.5):

1. the Contract Agreement (*if any*),
2. the Letter of Acceptance,
3. the Letter of Tender,
4. the Particular Conditions - Part A,
5. the Particular Conditions - Part B,
6. these General Conditions,
7. the Specification:

other parts of the~~The **Technical** **Specification**~~:

please refer to comments above

-no fixed content but usually containing:

(a) General Requirements
(b) Site Preparation
(c) Excavation Works
(d) Concrete Works
(e) Others

8. the Drawings, and
9. the Schedules and any other documents forming part of the Contract.

Insert:

The **Project Safety Specification** comprising:

1. The Particular Safety Specification, and
2. JSSS

Priorities:

1. Within the Project Safety Specification, the Particular Safety Specification shall have priority over JSSS, and
2. The Project Safety Specification shall have priority over the other parts of ~~Technical~~ the Specification in respect of health and safety matters.

(JC6)

JC6: Modified by JICA.

1.8 Drafting of Particular Safety Specification

(1) JICA emphasise the importance of the Executing Agency assisting in the pursuit of a zero-accident rate on the Works, for example by creating a safe working environment for the Works, by including for example: sufficient time for Bidding, reasonable Time(s) for Completion; reasonable, continuous and unobstructed access to the Site, detailed site information and sufficient ~~*Site*~~ *area(s) for the Site (including* ~~,~~ working and storage areas*)*, all wherever possible. Requirements shall be clearly described in the Bidding Documents. (JC7)

NK: We considers it seems better to add "for the achievement of a zero-accident rate on the Works" to (1) .

OK added above and edited.

JC7: modified to be in conformity with the definition in FIDIC.

NK: YH has no comment to the above modification.

The addition of "detailed site information" is a change to the Contract as it not incumbent upon the Employer to provide this. The information that should be made available is already described in the first sentence of GC 4.10 and I do not suggest that this is changed.

If JICA reference to Site information is required, I suggest that the addition could perhaps be:

"available and relevant data on sub-surface and hydrological conditions at the Site, as required by GC 4.10,"

(2) As JSSS is a specification of minimum requirements for compliance by the Contractor, there shall be no substantial deletion or alteration of JSSS requirements in the Particular Safety Specification unless so justified due the scope of Works, unless due to *Project specific requirements mean that additional or different safety requirements are to apply. In such cases, these additional or different requirements shall be developed and included in the Particular Safety Specification.* (JC8)

OK, I have edited the required changes as above.

(3) Executing Agencies shall take care when they ~~(or their consultants)~~ prepare ~~the Technical~~ other parts of the Specification and other parts of the Bidding Documents where JSSS is to be adopted, to ensure that there is no duplication of *or contradiction to* the health and safety requirements contained in the Project Safety Specification.

JC8: Modified.

The use of "Technical Specification" requires further consideration and amendment, here and elsewhere in the document.

Otherwise OK, no comment

~~*1.3.1 Composition and Priority of Specifications:*~~

~~(1) The Project Safety Specification, together with the Technical Specification shall collectively form the "Specification" as defined in the Contract.~~

~~(2) For the purposes of interpretation, the priority of the documents forming the Specification shall be in accordance with the following:~~

~~(a) The "Project Safety Specification" shall have priority over other parts of the Specification in respect of health and safety requirements; and~~

~~(b) Within the "Project Safety Specification" the Particular Safety Specification shall have priority over JSSS.~~

~~(3) If an ambiguity or discrepancy is found in the documents, the Engineer shall issue any necessary clarification or instruction.~~

The above can be deleted as it is largely duplicated with 1.7

1.9 Use on Ongoing Projects

(1) Unless otherwise agreed between JICA and the Executing Agency, JSSS shall not be automatically used on all JICA funded Projects, JSSS shall only be used when it becomes effective on the particular ODA Project as described in this guide, in clause 1.3 [*Effectiveness*].

(2) Where JSSS is already in use on any Project and by further agreement between JICA and the Executing Agency, future issues/revisions of JSSS may be applied after the date that such future issues/revisions are published on line subject to issue by the Engineer of an appropriate Variation under GC 13.1 [*Right to Vary*].

1.10 JICA Standard Bidding Documents

(1) JICA intend to amend and re-issue the "Standard Bidding Documents Under Japanese ODA Loans, Procurement of Works", published by the Japan International Cooperation Agency (JICA) (hereinafter referred to as "JSBD") to cover the required amendments to accommodate JSSS. (JC9)

(2) In order that JSSS can be used without delay and where so agreed to be used on particular Projects, the Bidding Documents for such Projects shall be drafted to take account of this guide in advance of ~~the~~ publication of the next issue of JSBD.(JC9)

NK: The amendment to JSBD is not necessary as the PC is not amended related with JSSS now. We consider the above (1) and (2) can be deleted and propose to replace them with the following if appreciate:

To make the Project Safety Specification as one of Bidding Documents, it shall be included as a part of Specification described in Section VI. Works Requirement of Standard Bidding Documents Under Japanese ODA Loans, Procurement of Works", published by the Japan International Cooperation Agency (JICA) (hereinafter referred to as "JSBD").

Yes, I fully understand this however this is not PC it is the Instructions to Bidders (ITB).

I had prepared appropriate information in the earlier Issue 6 (please refer to Annex 1.3 Required Amendments to JICA Standard Bidding Documents) but JICA have deleted this and instructed that no change in SBD is to be suggested.

We have dealt with PC in a manner which should probably be OK but the document is silent on ITB, and some thought needs to be given to this.

The following needs some mention:

JC9: Let's keep this and 1) to 3) below.

1) ~~The form of "Safety Plan" in Section IV. Bidding Forms shall include an explanatory note to the Bidders to inform them that they shall submit a safety plan in their bid in accordance with Section IV. Bidding Forms BF-20, SBD page 173 requires improvement by copy pasting the content of~~ Annex 1.2 ~~of JSSS "~~Bid Stage Safety Plan~~".~~ (JC10)

2) ~~HSO shall be specified as one of the Key personnel to be evaluated in~~ Section III. Evaluation and Qualification Criteria ~~e.g. SBD page 110 items 1.1.1, needs change to included reference to HSO~~, (JC10)

3) Bidders Safety Declaration ~~shall be added in Section IV Bidding Forms requires some instruction as to where in the Bid forms, this is to be included~~. (JC10)

I suggest it is better if the above is left in for now so that this can be discussed between JICA and NK.

JC10: JICA may time to time bring "mini-update" into our SBD. So, we prefer not to mention the concrete page number, which may be changed.

Please see above drafting changes

2. PARTICULAR SAFETY SPECIFICATION

2.1 Drafting Generally

(1) The Particular Safety Specification shall be carefully and precisely drafted by amending the various general requirement clauses of JSSS by adding particular requirements to ensure that the scope is precisely specified and so that the Contractor's obligations shall be clear and unambiguous.

(2) The amendments shall cover the examples listed in the table in clause 2.2 below, noting that this listing is not exhaustive.

~~(3) Any reference to "the Particular Safety Specification" shall mean that either full requirements are required to be stated in the Particular Safety Specification or that reference is to be made in that specification to parts of the Technical Specification or other documents comprised in the Contract, where full requirements are stated.(JC10)~~

JC10: Not very clear. Would you rephrase?

Rephrased as follows:

(3) The use in JSSS of the phrase "specified in the Particular Safety Specification" shall mean that either full requirements shall be specified in the Particular Safety Specification or that reference shall be made in the Particular Safety Specification to other particular parts of the Specification or other documents comprised in the Contract, where full requirements are so specified.

~~(4) A checklist shall be included with the Particular Safety Specification, which shall list all of the clauses in the following table, state briefly what action has been taken and also indicate where full requirements are specified so that this can be checked, if required.~~

NK: The Check list may be helpful for the Employer to understand and avoid missing items.

Yes but it is also necessary for us to prepare the detail first and then decide if it is good idea to give the Employer an easy option.

This was originally designed by is to allow JICA to check whether changes had been incorporated properly but this is not the case and there appears to be little point in preparing a check list if nobody is checking.

The Employer can check against the following tabulated list and there is no point in duplicating this. If JICA was checking, I would suggest a separate checklist as drafted in my earlier issues.

2.2 Particular Requirements

In addition to the requirements described in this guide in Clause 2.1 [*Drafting Generally*], the Executing Agency shall consider the requirements of all clauses in the following table and include appropriate clauses in the Particular Safety Specification:

Reference	Particular Safety Specification Requirements
~~*1.4.10 Compliance with JSSS and Other Regulations*~~JSSS 1.4.10 Continued Compliance with JSSS throughout the DNP	~~*The Contractor's obligations to provide temporary services and facilities generally finish at the end of the Time for Completion plus any additional period(s) within the Defects Notification Period (DNP) when the Contractor may be completing any outstanding work or remedying any defective work. If for any reason the Contractor is required to maintain a further presence at the Site during the DNP, this shall be clearly stated in the Particular Safety Specification together with the reasons, scope and duration of such presence.*~~

Reference	Particular Safety Specification Requirements
	~~*Suitable facility for pricing shall also be included in* **Section IV. Bidding Forms, Bill of Quantities**, *Bill No. 1: General Items, with unit rate for provision being shown as "month".*~~ ~~*The method of payment to the Contractor shall also be specified*~~ (JC10) JC10: Please see our comments to JSSS 1.4.10. *Please refer to our comments in JSSS 1.4.10.* *We believe that your interpretation of FIDIC requirements is not correct and if changed as you suggest, this will create additional and incorrect obligations and cost for the Contractor (and JICA), that are not contractually correct or supportable.* *We recommend that the clause is correct as drafted and should be reinstated to avoid future problems. We have modified the drafting to make sure that all reasons for these requirements are made clear and fully understandable by the Executing Agencies and their consultants.* Please refer to GC 8.2 and note that the Contractor shall complete the whole of the Works within the "Time for Completion". The Contractor's obligations to provide temporary health and safety services and facilities for the use of the Employer's Personnel prescribed by JSSS (for which he is paid as part of the Contract Price) will in principle, finish at the date stated in the Taking-Over Certificate and shall not continue during the Defects Notification Period (DNP). All work should be completed by date stated in the Taking-Over Certificate such that the Employer can take over possession of the Works, occupy and use same. This may exclude minor outstanding work and defects remedial work which will not substantially affect the use of the Works for their intended purpose and which shall be finished or remedied by the Contractor as soon as possible and within such reasonable time as is instructed by the Engineer. If the Contractor is still required to execute significant outstanding and remedial work affecting the Employer's use of the Works on the proposed date for taking over, then simply the Taking-Over Certificate should not be issued. Otherwise if outstanding and remedial works and are at acceptable levels and subject to compliance with the Contract, the Taking-Over Certificate can be issued and the Contractor can largely demobilise after the date stated in the certificate. The Contractor shall continue to assign (at his own cost) personnel for completing outstanding work or remedial work during and at the end of the DNP. Consequently, the Contractor has continuing obligations for the health and safety of his personnel for this purpose. Therefore, if the Employer requires the Contractor to continue with the provision of any of the temporary health and safety services and facilities required by JSSS during the DNP then this shall be

Reference	Particular Safety Specification Requirements
	particularly stated in the Particular Safety Specification together with the reasons, scope and duration(s) for such provision and associated conditions. Similarly, if the Employer requires that any of the Contractor's temporary health and safety services and facilities required by JSSS are to be transferred in future to the Employer, then these shall be listed and clearly described in the Particular Safety Specification and the same details given. ~~Separate items shall be included in the Bill of Quantities to allow pricing of the required services and facilities under this clause with separate lump sum items given for mobilisation and removal and monthly rate items given for ongoing provision and maintenance.~~ ~~The method of payment to the Contractor during the DNP shall also be specified given the differing rules for application and issue of Interim Certificates and retention during the DNP.~~
~~*1.10 Engineer's Safety Representative*~~	~~*The Particular Safety Specification shall state if the Engineer will appoint a full-time Safety Representative as an assistant upon the Works.*~~ ~~*If no such requirement is specified in the Particular Safety Specification it is to be assumed that the Engineer or a duly authorised assistant shall act in a part-time capacity.*~~(JC11) JC11: Please see our comment in JSSS 1.10 *I have no comment or objection to this deletion*
JSSS 1.12 Health and Safety Officer at the Site (HSO)	Refer to JSSS 1.12 where the minimum required period of experience and types of qualification for the HSO are described. If different periods of experience or qualifications are a legal requirement under the Laws of the Country, then these shall be clearly stated in the Particular Safety Specification. The general requirement in JSSS is that the HSO shall be assigned full-time upon the Works and spend all of his time on health and safety management. JICA advise that such full-time assignment is the normal requirement and part-time or shared assignment is only allowable on extremely small Projects or when *part-time or shared assignment is justified with particular reasons*~~separate written justification has been provided by the Executing Agency to JICA~~. *The above change is OK but is it JICA that reviews the justification and given reasons and at what stage?* *The requirement must be correct and clearly stated in the Bidding documents as a common basis and not changed thereafter.* *I suggest the following addition to accompany this change:*

Reference	Particular Safety Specification Requirements
	If the justification for part-time or shared assignment is acceptable to JICA, the agreed requirements shall be clearly stated in the Particular Safety Specification. ~~In addition to stating as above, facility (JC12) for pricing the cost of HSO shall be included in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items, to "Provide HSO and staff" with unit rate for provision being shown as "month".~~ *I have revised the approach to the inclusion of pay items for JSSS with the Bid Bill of Quantities, please refer to 3. BILL OF QUANTITIES on the last page of this guide.* *This simplifies the text of this part and avoids any need for consistency checks* JC12: What is "facility"? NK(YH): I understand that HSO may not be paid under BQ, is it correct? If so, I think facility will not be paid in BQ. NK(SS): Dasu Hydropower Project in Pakistan has included the payment for HSO in BQ and executed it. *It did mean the facility for pricing but I have redrafted this as above.* ~~Quantity in months shall be of the required period for provision which will usually be the Time for Completion and any allowance as required during the Defects Notification Period. (JC13)~~ NK: We think this shall be recorded in the Minutes of Discussion at JICA appraisal time. NK: May we know what facility do you expect? For example, transportation for HSO and his staff? By "facility": we mean allowing the Bidder the facility for pricing this requirement in his bid. Please let me know if you think we need to state facilities. JC13: It is necessary to consider how to pay for Safety Staff during DNP. It is doubtful to include payment for the Safety Staff during DNP in BQ. NKSS: Works in DNP is the responsibility of the Contractor, so the cost in the DNP shall be born by the Contractor. *Correct comment, it should not be paid* *Redrafted anyway as above.*
JSSS 1.21 Skill Training	The Particular Safety Specification shall state whether classroom-based skill training of *counterpart Operation Leaders* is, or is not, required. The Contractor shall be expected in any event to be provide OJT via his senior personnel to local counterparts. *This original text may require further change dependent upon NK/JICA clarification of requirements, please refer to query in Chapter 1* The Particular Safety Specification shall state whether the Contractor is allowed to bring into the Country for use upon the

Reference	Particular Safety Specification Requirements
	Works any unqualified, unskilled or inexperienced foreign Contractor's Personnel. If skill training is required, the Particular Safety Specification shall state how many candidates shall be selected, for which skill groups and for how long. This shall be determined by the scope and nature of the Works. (JC14) JC14: Please modify referring to the 1.21 Skill Training modified by JICA. *Please refer to my comments in Chapter 1, 1.21 as I do not agree that such levels of skills training are necessary or contractually correct.* *This training suggestion started off as OJT from assigned foreign Operation leaders but with the recent transfer of trainers from the operation training by JICA, I believe that this is now evolving into excessive and expensive requirements.* *I would appreciate your answers to my query on this item in chapter 1 before I attempt to amend this clause.* *I have no objection to the changes made by JICA below.* The Particular Safety Specification shall specify for example: (1) Requirements for classrooms and whether these can be of the Contractor's office facilities at the Site. (2) Requirements for training facilities (for example furniture, equipment, computers, sample tools and working equipment, other teaching aids and the like). (3) Requirements for teachers. (4) If classroom lessons are to be full-time or part-time (5) ~~*That candidates shall be paid their full wages and allowances during teaching time.*~~ (JC15) JC15: This is already stated in JSSS 1.19.3. So, no need to be mentioned in Particular Safety Specification. *Yes correct* (6) That the Contractor shall design syllabi to compliment the candidates' skill group, their work and position at the Site. (7) In addition to skill training, syllabi shall include health and safety training to an international level of appreciation with a general introduction to OSHA and other international safety standards and regulations. (JC16) JC15: There are few personnel who can train as mentioned above. Please review the above referring to the 1.21 revised by JICA. (8) Requirements for testing of candidates for example that the Contractor shall test candidates upon completion of their

コメントの追加 [伊藤1]: This is already stated in JSSS 1.19.3. So, no need to be mentioned in Particular Safety Spe.cification

Reference	Particular Safety Specification Requirements
	course, prepare and issue certificates of attendance and successful completion of each course. NK: We have an opinion that such details as (1) to (8) are necessary to specify by the Employer. Yes that is the requirement. ~~In addition to stating as above and if there is a requirement for such classroom-based skill training, appropriate pay items shall be included in the Bill of Quantities to allow pricing of the required services and facilities under this clause as follows:~~ ~~Assignment of Operation Leaders as teachers:~~ *All of the above needs to be adjusted and coordinated with the final version of JSSS 1.21 as it has now been changed by JICA comment from OJT teaching by Operation Leaders to full skills training and teaching by qualified trainers which I do not agree with. In any event I await the final version of JSSS 1.21 before I can edit or rephrase this.* ~~Unit: man-month Quantity: Total estimated man-months~~ ~~Use of Training Facilities: Sum~~ *The above is transferred to 3. BILL OF QUANTITIES on the last page of this guide.* If any Training Facilities are to be handed to the Employer or training aids given to candidates, then these shall be clearly specified in the Particular Safety Specification, items shall be listed with quantities given, otherwise all such Training Facilities shall remain the property of the Contractor and shall be removed on completion. NK: May we know the meaning of "issued to candidates" or describe in other words? e.g. notebook computers, books, training and aids, I have rephrased
JSSS 1.22.7 Rescue teams and equipment (JC17)	NK: The requirement for rescue teams and rescue equipment shall be specified. Not in this case this is for Dangerous Work for which the Contractor shall be responsible for this to ensure the safety of his workers. JC17: 1.22.8 was deleted by JICA, so this particular is not needed. Modified 1.24.7 stipulated emergency rescue and training. NK: I recalled the rescue drill in the subway Blue Line construction project as in Thailand shown the photos below: Safety team is under drill to transport an assumed victim from the tunnel to outside.

Reference	Particular Safety Specification Requirements
	  *I am confused over the content of JSSS 1.22.7 now as this has been combined with 1.24.7 by JICA.* *I assume that this clause is not now required but safety rescue training by the Contractor for his own personnel engaged on Dangerous Work is required.* *I will edit the above when I have received your advice and have reviewed your final version of chapter 1.*
JSSS 1.22.12 Hazardous Substances	~~After following Site survey and investigation,~~If it is considered that there is any likelihood of the existence of Hazardous Substances at the Site of the Works or in any existing buildings and structures, ~~or in the Works, then this shall be stated in the Particularly Safety Specification and~~ the Employer's requirements for removal and disposal by the Contractor shall be stated. (JC18) JC18: Is there any possibility of existing of Hazardous Substances in the Works? NK: Existing of asbestos is mentioned for example in 1.22.12. Bangladesh seems there are still asbestos as reported below. Asbestos : Country Profile BANGLADESH http://www.google.co.jp/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=2ahUKEwje-qDjlq3pAhVGZt4KHecYBggQFjAAegQIARAB&url=http%3A%2F%2Fwww.krcard.org%2Fcommon_english%2Ffiledown.php%3Ftid%3Dboard_dataroom2012_3%26ono%3D11%26n%3D1&usg=AOvVaw2eIuXWW8IHRtm_-Fduw4Vy *Yes, there is a possibility of existing Hazardous Substances being encountered on JICA funded works particularly on the many projects which require demolition or alteration of existing buildings and structures.* *Upgrading of water treatment facilities can involve contact with chlorine and other chemicals.* *I do not agree that the following corrected phrase should be deleted:* After Site survey and investigation has been carried out by the Executing Agency, if it is ….."

Reference	Particular Safety Specification Requirements
	I suggest that it is essential that the Executing Agency (actually their consultant) should always be aware of the possibility of encountering Hazardous Substances in existing buildings and on existing services and as such MUST survey likely buildings during the design stage to check this out. *It is important that the Contractor is given full information as if not discovered during the design stage, the later discovery will have significant and negative effects upon time, cost and safety.*
JSSS 1.24 Accident Response Plan	Although the Contract places obligations upon the Contractor under GC6.7 [Health and Safety], the Particular Safety Specification shall include a listing and description of any particular services and facilities that the Contractor is required to provide at the Site in addition to those already described in the Conditions of Contract. This is particularly relevant where the Site is located at an excessive distance from urban areas and/or where there is a lack of immediate availability of medical facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel and Employer's Personnel and all other persons who are entitled to be on the Site. ~~and other places (if any) where the Works are being executed.~~ *Please refer to my earlier comments in Chapter 1, JSSS 1.2.2 (6).* *"Site" can be changed as above; I suggest that the reference to other persons in this instance should remain.* The circumstances shall be investigated by Executing Agencies ~~and their consultants~~ during the design stage and full requirements shall be clearly described in the Bidding Documents. NK: There are same phrase of "described in the Contract". May it be modified? Please let me consider later, this is still very much an early draft, see also above change. Normally it would be in the Bidding documents so that the bidder can price for it. *I think that this should remain as it is. It is important that this is described at Bid Stage so that the Contractor is then aware and can price for this in his Bid.* *The Bidding Document will form a part of the subsequent Contract anyway.* Such additional facilities at the Site could for example include: (1) Enhanced medical staff with qualified doctor(s). (2) Enhanced first aid and treatment facilities and staff.

Reference	Particular Safety Specification Requirements
	(3) Enhanced medical equipment, medical supplies, medicines and drugs. (4) Additional treatment and recovery rooms. (5) An equipped ambulance based at the Site with qualified driver and attenders. (6) Where transfer time by road can exceed one hour, emergency air-ambulance evacuation services, shall also be considered in addition to the above. (7) Above available 7 days per week, 24 hours per day or during the normal working hours stated in the Contract Data, etc. The Particular Safety Specification shall state whether the medical, first aid and related services and facilities at the Site are to be available for during the normal working hours stated in the Contract or for any longer times. If any facilities as required under the Contract or additional facilities as required by JSSS are required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking-Over Certificate then this shall be clearly specified in the Particular Safety Specification. All such facilities shall be described and fully specified. If any facilities are to be handed to the Employer then any related requirements for replacement, repair or renovation shall be described. JC19: It is considered not necessary to specify as default the safety facility will be taken over by the Employer. The sentence after otherwise seems strange because there are some facilities necessary for repair works during DNP. *I believe it is essential that the PSSS shall clearly state if any of the safety facilities are to be handed over to the Employer upon taking over of the Works. These are temporary facilities and as such remain as the Contractor's property.* *If they are to be handed over to the Employer, they actually are (or become) permanent facilities which should be designed by the Employer. Drawings should be provided at Bid stage and full specifications provided including specifications for any required renovation.* *This is not stated above as a default but it is a frequently encountered problem when requested for the first time at the time of taking over by an employer.* *Any facilities remaining at taking over, unless specially stated to remain in the PSS shall be removed (or relocated) during the DNP or with alternative minimal facilities provided by the Contractor for his own personnel at his own cost.* The Particular Safety Specification shall also state whether the medical, first aid and related services and facilities at the Site for accidental injuries (or more) shall also be made available and whether free of charge or not to any accompanying family members of the Contractor's Personnel, the Employer's Personnel and the

Reference	Particular Safety Specification Requirements
	family members of any other persons who are entitled to be on the Site and other places (if any) where the Works are being executed. ~~Separate pay items shall be included in the Bill of Quantities to allow pricing of the required services and facilities under this clause with separate lump sum items given for mobilisation and removal and monthly rate items given for ongoing provision and maintenance.~~ ~~Quantity in months, shall be of the required period for provision which usually will not exceed the Time for Completion.~~ ~~Any services required during the Defects Notification Period or during the completion of outstanding work and remedying defects shall usually be at the Contractor's own cost.~~ *~~The above is transferred to 3. BILL OF QUANTITIES on the last page of this guide.~~*
JSSS 1.26 Emergency Response Plan	In locations where there is a risk of flooding, earthquake, volcanic or similar activity, the Contractor is required to take measures under JSSS 1.27 for basic emergency response. If t~~T~~he Employer ~~may~~ require~~s~~ additional measures, ~~and if so~~ these shall be stated in the Particular Safety Specification. These may include for example a requirement of the Contractor to establish, train and maintain a specialist team at the Site to assist in the event of an emergency and the provision of specialist equipment. (JC20) JC20: What is supposed by the expression " assist in the event of…."? In case of emergency like earthquake or volcanic activities, the Contractor cannot do a lot of things, but stop working and evacuating. We are afraid that with this drafting, the Contractor would be required to take "excessive" actions (e.g. firefighting at the time of volcanic activities???). How is the nuance of this drafting??? NK: JICA cannot understand what meaning of "assist" is and to whom the Contractor assists. I wonder if you are assuming that the Employer may request the Contractor to assist the Employer or community around the Site in emergency. In such cases, the Particular Safety Specification shall specify whether this is required, details of personnel and equipment to be provided so that the Contractor is made fully aware and is able to assess the extent, risk and cost of the requirements. ~~An appropriate pay item shall be included for this in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items, with unit for provision of facilities shown as "Sum" and unit rate/quantity for provision being shown as "month".~~

Reference	Particular Safety Specification Requirements
	The above is transferred to 3. BILL OF QUANTITIES on the last page of this guide. *Please refer to Clause 1.10 of your original Chapter 1 draft and my requests for you to explain your exact requirement. This clause stated:* *"The Contractor shall prepare an emergency response plan as a part of the Health and Safety Plan (or the Particular Health and Safety Plans as necessary)* ***in order to promptly and appropriately respond to natural disasters, fires, and other emergencies that may occur during construction."*** *I still do not understand exactly what is required.* *My comment on your document on 16/7/19 stated as follows:* *"NK please note:* *Natural disasters include typhoons, earthquakes etc. these are GC19 Force Majeure situations for which the contractor is not responsible for making any such "response".* *NK what is the actual extent of the Contractor's "response"? What manpower and equipment is he to provide? How can this be predicted and estimated?* *What about the Employer's and Engineer's own plans and what about the availability of the rescue services etc. in the Country?* *These arrangements appear to be excessive.* *Can we please discuss and consider this further to understand the purpose and intention.* *We have edited the following to make it readable (not the above paragraph yet) but do not agree fully with the content. "* *I have since explained that the Contractor has no obligation to plan for or to "respond to natural disasters, fires, and other emergencies that may occur during construction."* *Please also refer to my recent comments and queries against JSSS 1.26 which include:* *"JSSS cannot specify what other measures the Contractor is to take after a Force majeure event (which I guess your emergency plan is trying to cover) as these events and any counter measures cannot be predicted.* *In order to move the document forward, I had assumed in July 2019 that response services by the contractor, can only include a call list, training of response teams and perhaps the provision of general assistance from available resources hence the very loose drafting*

Reference	Particular Safety Specification Requirements
	of this clause. I have also explained that need will vary on an country to country basis with some countries having no such requirement. *However, as I am now being questioned on my interpretation of your clearly inadequate draft, and the confusing manner in which this clause is evolving, I will refrain from making further revision of this User Guide clause until after I have received and reviewed your final updated draft of JSSS 1.26.* *In re-drafting 1.26. please can you describe exactly what scope of work you are requiring the Contractor to perform in the event of an earthquake, hurricane, typhoon or volcanic activity, so that I can edit this if necessary.*
JSSS 1.29 Project Safety Committee	On large Projects with multiple contract packages, consultants and contractors, the Executing Agency may consider that an overall Project Safety Committee should be established to manage and coordinate all of the various contracts comprised in the Project. If so required, this shall be stated in the Particular Safety Specification together with a description of the requirements. *Suggestion for improved drafting*
JSSS 1.30 Health and Safety Coordination with Other Contractors, (refer also to GC 2.3 [*Employer's Personnel*])	The Particular Safety Specification shall describe the scope of work of any other contractors to be employed by the Employer on the Site and where possible identify them by name. The Particular Safety Specification shall also describe the scope of work of any legally constituted public authorities who may be employed by either the Employer or by the Contractor to execute work on or near the Site and identify them by name.
JSSS 1.36 Health Matters	Although the Contract places obligations upon the Contractor under GC6.7 [*Health and Safety*], the Particular Safety Specification should include a listing and description of any particular services and facilities that the Contractor is required to provide at the Site for health control in addition to those already described in the Contract. The listing should also include furniture and equipment for rest stations, restroom, dining facilities, canteens, sanitary facilities, recreational facilities, shower facilities, changing rooms and the like together with a description of any requirements for use and for example whether facilities can be used by the Employer's Personnel and their families. This is particularly relevant where the Site is situated some distance away from urban areas and/or where there is a lack of immediate

Reference	Particular Safety Specification Requirements
	availability of suitable medical facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel, to compensate for any lack of available services or facilities or lack of any local health authorities. The circumstances shall be investigated by Executing Agencies and their consultants during the design stage and full requirements shall be clearly described in the Bidding Documents. ~~Consideration as to whether assignment of healthcare staff is required to be full time or part time~~ (JC20) JC20: The sentence is incomplete. *Edited as follows:* The Executing Agency shall consider whether assignment of healthcare staff is required to be full time or part time and this shall be clearly stated in the Particular Safety Specification. ~~In addition to stating as above, if there is a requirement for such additional facilities, appropriate pay items shall be included for each of the above in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items, with unit for provision of facilities shown as "Sum" and unit rate/quantity being shown as "month".~~ ~~Quantity in "months" shall be of the required period for provision which will usually be the Time for Completion and any required time during the Defects Notification Period.~~ *The above is transferred to 3. BILL OF QUANTITIES on the last page of this guide.* ~~If any facilities required under the Contract or additional facilities are required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking Over Certificate then this shall be clearly specified in the Particular Safety Specification, *items shall be listed with quantities and fully specified, otherwise all such facilities shall remain the property of the Contractor and shall be removed on or before the issue of the Taking Over Certificate*.~~ *For consistency with 1.24 Accident Response Plan, I suggest redrafting of the above deleted clauses as follows:* The Particular Safety Specification shall state whether the services and facilities specified are to be available during the normal working hours stated in the Contract or for any longer times. If any facilities as required under the Contract or additional facilities as required by JSSS are required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking-Over Certificate then this shall be clearly

Reference	Particular Safety Specification Requirements
	specified in the Particular Safety Specification. All such facilities shall be described and fully specified. If any facilities are to be handed to the Employer, any requirements for replacement, repair or renovation shall be described. The Particular Safety Specification shall also state whether the services and facilities at the Site shall also be made available and whether free of charge or not, to any accompanying family members of the Contractor's Personnel, or to the Employer's Personnel or to the family members of any other persons who are entitled to be on the Site and other places (if any) where the Works are being executed.
JSSS 1.37 Design and Management of Temporary Works	As a standard requirement, the Particular Safety Specification shall require Bidders to comply with BS5975 (latest issue) or approved equivalent for the design and management of Temporary Works. If Bidders are NOT required to comply with BS5975, the Particular Safety Specification shall state this and also state that Bidders are to comply in any event with the specified requirements of JSSS 1.37 and submit full details in the Safety Plan.
JSSS ~~1.38 User Training~~ 1.38 User Training ~~1.38 User Training~~	*The draft clause has been deleted with the comment/query:* This must be relevant as guidance to the Employer. But not as Particular specification???~~*The Particular Safety Specification shall state whether User Training of Employer's Personnel is required so that the Works or any part or Section thereof can be used, operated and maintained in a safe manner.*~~ *I don't understand the comment; this User Guide is for the purpose of guiding the Employer with his drafting of the Bid documents.* *The originally drafted content, is the guidance.* *Permanent equipment (Plant) is a major component of most JICA projects and the purpose of JSSS 1.38 was to make sure that the Bidding documents include a consistent and clear requirement for high level operator safety training for such Plant (commonly imported) that has been provided under the contract by foreign trainers. It is basically to ensure that all operators of this Plant are properly trained by the Contractor to ensure they can use it safely.* *Often this requirement is not specified properly and full training for safe use is not effectively provided.* ~~*If it is required, the Particular Safety Specification shall modify or add to the requirements of JSSS 1.38 [User Training] and state the precise requirements including details of required training, numbers of candidates and duration of training.*~~

Reference	Particular Safety Specification Requirements
	~~*This shall be determined by the scope and nature of the Works and the number of users, management staff, operators, maintenance staff who will be engaged upon the Works.*~~ ~~*The Particular Safety Specification shall state whether lessons will be full-time or part-time.*~~ ~~*The Contractor shall design syllabi to compliment the training courses and in addition to user training, syllabi shall include health and safety training to an international level of appreciation with a general introduction to OSHA and other international safety standards and regulations. The Contractor shall test candidates upon completion of their course, prepare and issue certificates of attendance and successful completion of each course.*~~ ~~*In addition to stating as above and if there is a requirement for such user training, appropriate pay items shall be included for each of the above in* **Section IV. Bidding Forms, Bill of Quantities**, *Bill No. 1: General Items for:*~~ ~~*Assignment of teachers for user training*~~ ~~*Unit: man-month Quantity: Total estimated man-months*~~ ~~*Provision and use of Training Facilities: Sum*~~ ~~*If any Training Facilities are to be handed to the Employer or issued to candidates, then this shall be clearly specified in the Particular Safety Specification, items shall be listed with quantities and fully specified, otherwise all such Training Facilities shall remain the property of the Contractor and shall be removed on completion.*~~
JSSS 1.39 Unexploded Ordnance	If there is a possibility that any UXO may exist at the Site, then this shall be surveyed and investigated by the Executing Agency before Bids are requested and the result of this investigation shall be clearly stated and full information including survey and investigation results shall be provided by the Executing Agency in the Particular Safety Specification. Clearance of UXO shall be undertaken by the Executing Agency as a condition precedent to commencement under GCC 8.1 [*Commencement of Works*], by the agency's own arrangements and at their own cost. Clearance shall be carried out by specialist government organisations, forces or contractor(s) that are appropriately and specifically qualified, skilled and experienced in the safe and environmentally acceptable removal and disposal of UXO, engaged directly by the Executing Agency. Completion of clearance shall be evidenced through the issue by the Executing Agency's specialist remover of a certificate of UXO clearance from the Site area. A copy of this certificate shall be provided to the Engineer and the Contractor. No work shall commence in relevant areas of the Site until the receipt by the Engineer and Contractor of a copy of this certificate. Should the Contractor encounter any UXO, after a clearance certificate has been issued in accordance with the above, he shall

Reference	Particular Safety Specification Requirements
	immediately stop all affected work at Site, clear the affected area of all Contractor's Personnel, Employer's Personnel and all other persons and notify the Engineer and relevant authorities. Unless otherwise agreed between Employer and Contractor, the Executing Agency shall then make further arrangements for removal and disposal, then obtain and issue a further clearance certificate. Work shall resume in the affected areas after the Contractor has received a copy if the further clearance certificate together with any further instructions from the Engineer. (JC21) JC21: This must be relevant as guidance to the Employer. But not as Particular specification??? NK: I wonder how to specify this as guidance. *I don't understand the comment; this User Guide is for the purpose of guiding the Executing Agency with their drafting of the Bid documents.* *The originally drafted content is the guidance.*
JSSS 2.1.2 Hazardous Substances - Asbestos	If there is a known possibility that asbestos in any of its various forms may exist at the Site (for example in existing buildings, structures or installations or which has been disposed of or buried at the Site then this shall be surveyed and investigated by the Executing Agency using a specialist qualified consultant/contractor before Bids are requested. The result of this investigation shall be clearly stated and full information including survey and investigation results shall be provided in the Particular Safety Specification. If possible, removal and disposal of this asbestos shall be undertaken by the Executing Agency before commencement of the Works by the agency's own arrangements and at their own cost. Removal and disposal shall be carried out by a specialist contractor that is appropriately and specifically qualified, skilled and experienced in the safe and environmentally acceptable removal and disposal of asbestos, engaged directly by the Executing Agency. Completion of removal and disposal shall be evidenced through the issue by the specialist contractor of a suitable certificate. A copy of this certificate shall be provided to the Engineer and the Contractor. No work shall commence at the Site until the receipt of a by the Engineer and Contractor of a copy of this certificate. Should the Contractor encounter any asbestos, after a clearance certificate has been issued in accordance with the above, he shall immediately stop all affected work at Site, clear the affected area of all Contractor's Personnel, Employer's Personnel and all other persons and notify the Engineer and relevant authorities. Unless otherwise agreed between Employer and Contractor, the Engineer shall issue an appropriate Variation under GC 13 [*Variations and Adjustments*].

Reference	Particular Safety Specification Requirements
	If removal is to be undertaken by the Contractor, this shall be stated in the Particular Safety Specification with full details and drawings of the extent and requirements for removal and disposal. Separate pay items shall be included in the Bill of Quantities to allow pricing of the removal and disposal with separate lump sum items given for mobilisation and removal of resources and approximate quantities given for the area of asbestos.
JSSS 2.1.1 Other Hazardous Substances	If there is a known possibility that any other Hazardous Substances may exist at the Site this shall be stated and full details provided of all likely hazards in the Particular Safety Specification.
JSSS 2.2 Risk Control Around the Site	The Particular Safety Specification shall describe the required Site Perimeter fencing showing the extent, dimensions, constructional details and specification, whether temporary or permanent. This shall also be shown on the Drawings. Requirements for permanent or temporary fencing or barriers within the Site shall be described and shown for example around areas where Dangerous Work is being carried out. Gates, barriers and other measures at Site entrances shall be described together with any arrangements for communications, lighting and power supply. Requirements for security at the Site entrance and also around the Site shall be described and whether this is to be provided by the Contractor or the Employer.
JSSS 2.2.6 Community Relations	If the Contractor is required, to assist the Employer with maintaining community relations, for example conducting traffic safety and awareness activities for the local community, this shall be described in the Particular Safety Specification and full details of requirements shall be stated.
JSSS 2.3.1 Dangerous Work	If there is a known possibility that any Dangerous Work will be necessary this shall be stated and full details provided of all likely hazards in the Particular Safety Specification. If the scope of Works includes any work to be performed in Operational Areas, then a list of such works and a full description of the nature and conditions of operations shall be included in the Particular Safety Specification. Any requirements and restrictions on the Contractor's working methods and times and any special access, safety or other arrangements shall be further described in detail. The respective responsibilities for insurance, health and safety management, security, health and welfare facilities, etc., between the Employer and Contractor(s) shall be clearly described so that there is no doubt over what each party is to perform or provide.

Reference	Particular Safety Specification Requirements
	A copy of the Employer's working procedures, including their health and safety procedures shall be provided to Bidders for their study during the Bidding period.
JSSS 2.8 Fire Prevention	Although the Contract places obligations upon the Contractor for care of the Works, the Particular Safety Specification should include a listing and description of any particular fire-fighting and rescue services and facilities that the Contractor is required to provide at the Site. (JC22) JC22: This request seems excessive to provide fire engine, fire brigade for 24 hours stan-by. *This is entirely my suggestion, please amend as you consider necessary.* *My thinking is influenced by the fact that whilst FIDIC confirms that the Contractor is responsible for the care of the Works (GC 17), and safety (GC 4.8 and 6.7) it does not specify example requirements for fire control such as are given for health and safety under GC 6.7* *GC 6.7 for example mentions "local health authorities" but does not mention "local fire-fighting authorities.* *I suppose that FIDIC like many other standard contracts, assumes that a public fire service will be available however this is definitely not the case on many JICA projects.* *Often the site (for example on hydro projects) is so far away from urban areas that any public fire service is of no value. Also and quite frequently such services are ill equipped for use on major JIOCA style projects.* *Much injury, death and damage will therefore occur because sufficient fire-fighting facilities are not provided by the Contractor at the site unless particularly specified. Reliance is placed upon insurance but this is compensation and not a safety feature.* *Many sites will require the provision of full fire-fighting facilities hence my suggested common basis draft in JSSS* This is particularly relevant where the Site is situated some distance away from urban areas and/or where there is a lack of immediate availability of suitable fire-fighting and rescue facilities, or where such facilities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel, to compensate for any lack of available services or facilities or lack of any local health authorities. The circumstances shall be investigated by Executing Agencies ~~and their consultants~~ during the design stage and full requirements shall be clearly specified in the Particular Safety Specification. Such additional facilities at the Site could for example include:

Reference	Particular Safety Specification Requirements
	(1) An equipped fire engine based at the Site with qualified driver and crew selected from the workers at the Site. (2) Sufficient temporary water and power supply to maintain emergency use. (3) Additional PPE for the fire-fighting and rescue team. (4) Enhanced fire protection equipment and facilities around the Site. (5) Above available 7 days per week, 24 hours per day or during the normal working hours stated in the Contract Data, etc. Where applicable, details shall be provided in the Particular Safety Specification for the selection, training and equipping of emergency fire-fighting teams selected from existing Contractor's Personnel at the Site, who in addition to their normal work, shall be called upon immediately in the event of any fire, to rescue any person(s) who may become trapped or injured or otherwise affected or incapacitated by fire and to provide suitable, specialist and appropriate first aid and medical treatment. Without limiting the Contractor's obligations, the Particular Safety Specification shall describe the particular scope of fire prevention services that are to be provided by the Contractor for the Works. If any facilities as required under the Contract or additional facilities as required by JSSS are required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking-Over Certificate then this shall be clearly specified in the Particular Safety Specification. All such facilities shall be described and fully specified. If any facilities are to be handed to the Employer, any requirements for replacement, repair or renovation shall be described. ~~Separate pay items shall be included in the Bill of Quantities to allow pricing of the required services and facilities under this clause with separate lump sum items given for mobilisation and removal and monthly rate items given for ongoing provision and maintenance.~~ ~~The quantity in months, shall be of the required period for provision which usually will not exceed the Time for Completion.~~ ~~Any services required during the Defects Notification Period or during the completion of outstanding work and remedying defects shall usually be at the Contractor's own cost.~~ *The above is transferred to 3. BILL OF QUANTITIES on the last page of this guide.*
JSSS 3.0 Existing Underground,	The Particular Safety Specification shall describe the required extent of any work required in connection with any existing Underground, Concealed or Overhead Services, with details and specification and this shall also be shown on the Drawings.

Reference	Particular Safety Specification Requirements
Concealed and Overhead Services	If any such services are the property of the Employer, this shall be stated clearly and the route, size, purpose of each shall be described and shown. If these services are to remain live and functional throughout the Time for Completion of the Works or if they are to be removed and if so by whom shall also be described. If any of these services are the property of a legally constituted public authority or a third party, this shall be stated clearly and the owner, route, size, purpose of each shall be described and shown. A copy of the regulations of the legally constituted public authority or third party shall be provided in the Particular Safety Specification or made available with the Bidding documents If services are to remain live and functional throughout the Time for Completion of the Works or if they are to be removed and if so by whom, (i.e. the authority or third party or the Contractor) shall also be described. The Particular Safety Specification shall also describe or include the procedures and requirements (including responsibility for insurance and safety procedures) of the authority or third party if the Contractor is to carry out the work.
JSSS 4.7 Temporary Fuelling Facilities	If fuel storage and dispensing arrangements are existing at the Site and are available for the Contractor's temporary use upon the Works then this shall be stated in the Particular Safety Specification and the requirements for use shall be described. Otherwise, the Contractor shall design and construct temporary fuel storage and dispensing facilities at the Site for the use of Contractor's Equipment. If there are any restrictions upon the provision and use of such facilities, then these shall be described in the Particular Safety Specification.
JSSS 6.1.1 Design and Provision of Temporary Works Generally	The following (formerly a part of 1.37) is inserted here following JICA comment in chapter 1 as follows: JC70: Understand. But, could you transfer 1.37.8 to User Guide for guidance for small project (including grant aid projects)? NK5/6: Will modify as commented. In accordance with JSSS 1. [*Design and Management of Temporary Works*], the Contractor is generally required to comply with the requirements of BS5975: Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework or an equivalent alternative standard. On exceptionally small projects or projects which do not demand the provision of complex temporary supporting or load bearing falsework and the like, then, subject to submitting justification with particular reasons acceptable to JICA, the following alternative requirements may apply and if so, the following shall be included in the Particular Safety Specification:

Reference	Particular Safety Specification Requirements
	"Where the Contractor is not required to comply with BS5975 or an equivalent alternative, the Contractor shall demonstrate by description in the Safety Plan that he has effective arrangements in place for controlling risks arising from the design, selection of materials, components and equipment, use, management, dismantling and removal of Temporary Works including for example, by ensuring the following: *(1) Appointment of appropriately qualified and experienced staff.* *(2) Preparation of adequate Temporary Works designs.* *(3) Independent internal or external checking of the Temporary Works Design.* *(4) Preparation of a Temporary Works register and records* *(5) Pre-erection inspection of all Temporary Works, including materials, components and equipment.* *(6) Control and supervision of the Temporary Works erection, safe use, maintenance and dismantling of the Temporary Works, including procedures to:* *(a) Check that the Temporary Works have been erected in accordance with the design and issue by the HSO of a suitable sign showing it as complete and safe to use; and* *(b) Confirm when the Permanent Works have attained adequate strength to allow dismantling of the Temporary Works and issue by the HSO of a suitable sign showing that it is ready for dismantling.* *In accordance with JSSS 1.18 [Proper Placement of Contractor's Personnel], the Contractor shall ensure that the design, erection, maintenance, dismantling and removal of Temporary Works, are all carried out by competent and experienced persons and in a controlled and closely supervised manner.*
JSSS 6.1.3 Monitoring Impact of Works on Other Properties	The Contractor is required under this clause of JSSS, to monitor the Temporary Works to demonstrate that they are performing safely, to the designed limits and for the intended purpose. The Contractor is further required under the same clause of JSSS *"to monitor any vibration, settlement and other potentially damaging effects arising out of the execution of the Works to ascertain if these are causing any adverse effect to ground, buildings, structures and other properties, paved areas, roads, footpaths, fences, railways, waterways, drainage, utilities or any other property on the Site or outside the Site (collectively referred to in this Section as "other properties") to ensure that no damage or weakening is caused to such other properties."* If there is a risk that the execution of the Works may cause any damage to any "other properties" (as referred to in JSSS 6.1.3) and

Reference	Particular Safety Specification Requirements
	if the Executing Agency considers that particular minimum requirements for monitoring equipment, locations and methods are helpful or necessary, then these shall be stated in the Particular Safety Specification and the requirements shall be described. The methods may include for example the inclusion of monitoring criteria to assist the Contractor in establishing his own procedures for monitoring to avoid any damage to other properties. If these particular minimum requirements are included, it is important also to state in the relevant clause in the Particular Safety Specification that the requirements are for assistance only and that they shall not in any way affect the Contractor's obligation to execute the Works without causing any damage to other properties.
JSSS 6.2 Earthwork Support	For monitoring requirements, refer to the above reference in this table to JSSS 6.1.3 [*Monitoring Impact of Works on Other Properties*].
JSSS 6.3 Cofferdams	For monitoring requirements, refer to the above reference in this table to JSSS 6.1.3 [*Monitoring Impact of Works on Other Properties*].
JSSS 7.2 Manual or Machine Excavation	In accordance with JSSS 7.2, the Contractor shall be responsible for choosing manual or machine excavation, selecting types of Contractor's Equipment, types of Temporary Works, Earthwork Support, spoil removal, storage and handling, controlling ground and surface water, forming embankments and cuttings and the like, in conformity with GC 4.10. If there are any known and specific requirements or restrictions to be placed upon the Contractor for methods of excavation, types of equipment, Temporary Works Earthwork Support, spoil removal, storage and handling, controlling ground and surface water, forming embankments and cuttings and the like. then this shall be stated in the Particular Safety Specification and the requirements shall be described.
JSSS 7.5.3 *Excavation Works*	For monitoring requirements, refer to the above reference in this table to JSSS 6.1.3 [*Monitoring Impact of Works on Other Properties*].
JSSS 7.6 Excavation by Blasting	If the scope of Works includes Blasting Works for tunnelling which is presently not included in the scope of JSSS, full requirements shall be specified in the Particular Safety Specification.

Reference	Particular Safety Specification Requirements
	If Blasting Works are allowable or are not allowable then this shall be stated in the Particular Safety Specification and any requirements and restrictions shall be described. If Blasting Works are allowable, then the Particular Safety Specification shall state if electric detonators can be used and the requirements shall be described. For monitoring requirements, refer to the above reference in this table to JSSS 6.1.3 [*Monitoring Impact of Works on Other Properties*].
JSSS 8.1.1 Foundation Piling	For monitoring requirements, refer to the above reference in this table to JSSS 6.1.3 [*Monitoring Impact of Works on Other Properties*].
JSSS 10.4.2 Diving Workboats	If the scope of Works includes Diving Works, and if there are any requirements and restrictions then these shall be described in the Particular Safety Specification. If there is a decompression chamber or medical support facilities existing at or near to the diving site and is available for the use of the Contractor then this shall be stated and the type, specification and capacity shall be described together with any requirements and restrictions for use. If a separate rescue tender is required to be provided and moored alongside the workboat for assisting with recovery of Divers who are in difficulty or have drifted away from position then this shall be stated and full requirements shall be described. If there any special requirements for communications with the Dive Team, these shall also be described.
GC 6.6 Facilities for Contractor's and Employer's Personnel	The Particular Safety Specification shall describe any necessary accommodation and welfare facilities that the Contractor is to provide for the Contractor's Personnel and whether such facilities or further facilities are also to be provided for the Employer's Personnel and others. If any land area is available at the Site for such facilities this shall be stated and shown and any requirements and restrictions shall be described. The Particular Safety Specification shall describe the required scope, design, constructional details and specification, whether temporary or permanent and this shall also be shown on the Drawings. If such facilities are required, the Particular Safety Specification shall describe in detail:

Reference	Particular Safety Specification Requirements
	(1) Responsibility and scope of maintenance, repair and cleaning of such facilities as necessary to maintain them in a clean, habitable, hygienic and safe condition, including garbage removal and disposal, rodent and insect control and the like. (2) Responsibility for and scope of potable water supply, water and power supply, waste water and sewage drainage and treatment. (3) Whether such facilities are required to be provided during the Defects Notification Period (4) Whether such facilities are to be removed by the Contractor or are to be handed over to the Employer on issue of the Taking-Over Certificate and if so in what condition. The extent of provision by the Contractor shall take due account of the nature and location of the Site and the condition of access thereto, with a higher range and standard of facilities being provided in remote locations to promote good health, hygiene, comfort, welfare and safety of all users and occupants.

3. BILL OF QUANTITIES

3.1 Incorporation of JSSS Requirements

(1) The Bills of Quantities to be prepared by the Executing Agency for the purposes of the Bidding Documents, Section IV. Bidding Forms shall include separate pay items to cover the main component parts of JSSS.

(2) The Executing Agency shall prepare a Bill of Quantities in accordance with the JICA Standard Bidding Document in order:

(a) to provide the facility for the Contractor to include the cost of JSSS compliance in his Bid; and

(b) to provide a basis for the preparation of Statements as part of the Contractor's application for payment under GC 14 [*Contract Price and Payment*].

(c) The Project Safety Specification (including JSSS), and

(3) Appropriate pay items shall be included in Bill No. 1 - General Items, to cover the following general components of the Project Safety Specification, such as:

(a) Assignment of HSO with supporting staff and provision of safety management activities (JSSS 1.13)

(b) Skill Training (JSSS 1.21)

(c) Accident Response Facilities (JSSS 1.24)

(d) Emergency Response Plan (JSSS 1.26)

(e) Health Facilities (JSSS 1.36)

(f) Design and Management of Temporary Works (JSSS 1.37)

(g) Fire Prevention (JSSS 2.8)

(4) The Pay items for the above shall be separated into lump sum and monthly payment items in accordance with the following table:

Ref	Description	Establishment and removal of facilities (sum)	Provision of Services (month)
(a)	Assignment of HSO with supporting staff and provision of safety management activities		✔
(b)	Skill Training *NK please note that originally this was intended to be OJT provided by skilled and experienced foreign personnel who were also to be engaged actively upon the works. The costs would therefore have been minimal. However, the level of training has now been increased by JICA through the introduction of skilled trainers from JSSS 1.38 [User Training] significantly increasing the costs and also perhaps (it is not yet clear) requiring skill training for other as yet undefined*	✔	✔

	workers. I do not agree with (nor fully understand) the intention and await your further instruction and redrafting of relevant clauses. *This will have an effect upon the price of these requirements.*		
(c)	Accident Response Facilities	✔	✔
(d)	Emergency Response Plan *NK: I await confirmation of your requirements*	?	?
(e)	Health Facilities	✔	✔
(f)	Design and Management of Temporary Works		✔
(g)	Fire Prevention	✔	✔

Note: The above quantity (expressed in months) shall be of the required period for provision which usually will not exceed the Time for Completion. Any services required during the Defects Notification Period to oversee completion of outstanding work and remedying defects shall usually be at the Contractor's own cost.

(5) Appropriate pay items shall be included in other Bills of Quantities to with relevant quantities, unit rates and sums for other parts of JSSS according to the particular scope of the Works for example removal of known hazardous substances, Blasting Work and Diving Works.

Note to NK: this section is a preliminary draft which will require further coordination after JSSS and the foregoing Guide sections 1 and 2 have been completed.

JSSS in English R1 for Issue 2 (2020/05/12) JC: JICA comments (4/22), NK: NK Actions (5/12)	JSSS in English Issue 2（2020/05/26） JC: JICA comments (4/22), NK: NK Actions (5/12), *Notes: MD's revision and note*, NK:6/2 NK comments and revisions	JSSS in English Issue 2 Clean Copy（2020/6/5 by NK based on 5/26）
	***Notes to NK**; (underlined by NK)* *The statement that the User Guide does not form a part of the Contract has been omitted in Chapter1 by JICA.* *I have provided a note there for NK information, which I repeat here* *I felt that the omitted note was important and intended to limit risk for JICA.* *"The deletion is shaded in blue so I must not comment.* *The biggest user of JSSS is actually the Contractor, and if it is published at the same time as the User Guide on the same JICA website the contractor will refer to it and this could create future problems.* *Future claims from contractors can be predicted on this for example that the Bid documents have not been prepared properly according to the User Guide or that the full information (for example required by User Guide clause 1.3.3) has been not been provided or has been withheld. Whether such claims are insupportable under the contract or not, they must still be defended and this takes time and money usually which JICA pay.* *JSSS 1.3.4 was intended to very simply prevent this but it has been deleted and I have been asked not to comment, so what can I do?* *After further consideration on this subject and as advised in my last comment of Annex 1, I also suggest that it is better to rename the "User Guide", for example as the "Guide for Use of Executing Agencies", it is more correct and may reduce the risk of claim even though it will not solve this problem fully."* *I have therefore re-titled this document as "Guide for Use of Executing Agencies" for the above reasons* *I have also confirmed in this document, that it does not form a part of any contract.* NK6/2: We considers MD's suggestion to rename is proper, so we propose to rename this document as "Guide for Use of Executing Agencies".	
USER GUIDE **1.1 General** 1.1.1 Purpose 1.1.2 Objective of JSSS 1.1.3 Effectiveness 1.1.4 Content **1.2 Application to Grant Aid and other Projects** 1.2.1 General **1.3 Incorporation of JSSS into Bids and Contract** 1.3.1 General 1.3.2 Safety Specification and Technical Specification 1.3.3 Drafting of Particular Safety Specification 1.3.4 Composition and Priority of Specifications 1.3.5 Ongoing Projects 1.3.6 JICA Standard Bidding Documents **1.4 The Particular Safety Specification** 1.4.1 General	**GUIDE FOR USE OF EXECUTING AGENCIES** **1 GENERAL** 1.1 Purpose 1.2 Objective of JSSS 1.3 Effectiveness 1.4 Content 1.5 Application to Grant Aid and Other Projects 1.6 Incorporation of JSSS into Bids and Contracts 1.7 Structure of Specification ~~and Technical Specification~~ 1.8 Drafting of Particular Safety Specification 1.9 Use on Ongoing Projects 1.10 JICA Standard Bidding Documents **2 PARTICULAR SAFETY SPECIFICATION** 2.1 Drafting Generally 2.2 Particular Requirements **3 BILL OF QUATITIES** 3.1 Incorporation of JSSS Requirement	**GUIDE FOR USE OF EXECUTING AGENCIES** **1 GENERAL** 1.1 Purpose 1.2 Objective of JSSS 1.3 Effectiveness 1.4 Content 1.5 Application to Grant Aid and Other Projects 1.6 Incorporation of JSSS into Bids and Contracts 1.7 Structure of Specification 1.8 Drafting of Particular Safety Specification 1.9 Use on Ongoing Projects 1.10 JICA Standard Bidding Documents **2 PARTICULAR SAFETY SPECIFICATION** 2.1 Drafting Generally 2.2 Particular Requirements **3 BILL OF QUATITIES** 3.1 Incorporation of JSSS Requirement

1.4.2 JSSS Items to be Considered for the Particular Safety Specification		
JICA STANDARD SAFETY SPECIFICATION (JSSS) **USER GUIDE (JC1)** JC1: We understood this us first draft as MD mentioned. **1.1. General** 1.1.1. Purpose (1) This User Guide is designed for the information and assistance of Executing Agencies and (where applicable) their consultants for use in the preparation of Bidding and Contract Documents and for the evaluation, award and implementation of Contracts, for Projects where such agencies have agreed with JICA to adopt JSSS. (2) Definitions and abbreviations used in this User Guide are the same as used in JSSS. (3) If the user has questions regarding the use of JSSS, the appropriate JICA's official should be consulted. (4) This User Guide is an information document only which will not form a part of any Contract for the execution of any construction works. 1.1.2. Objective of JSSS (1) As noted in JSSS, JICA requires that all parties engaged upon their ODA Projects shall endeavour to establish and maintain a culture ensuring human security and the maintenance of human rights as an essential and fundamental feature. (2) The common objective shall be the achievement of a zero-accident rate on the Works, adopting the slogan of "Safety First" by creating a working environment where health and safety are of the highest priority. (3) To assist with achieving this objective, JICA has published the JICA Standard Safety Specification (referred to as "JSSS"), which JICA wishes to be adopted for future selected Projects by the Executing Agencies for such Projects. 1.1.3. Effectiveness JSSS has been published on-line by JICA~~.~~ *Unless otherwise specifically agreed by the parties to the Loan Agreement for particular Projects, JSSS* ~~and it~~ shall become effective and used by Executing Agencies ~~for particular Projects *on the date that the Loan Agreement for that Project is executed and* where the parties to such Loan Agreement have formally and specifically agreed to adopt JSSS~~ as the technical basis for Health and Safety management on that Project. (JC2) JC2: We modified so that JSSS would be enforced to the Project unless agreed by JICA	**JICA STANDARD SAFETY SPECIFICATION (JSSS)** **GUIDE FOR USE OF EXECUTING AGENCIES** **1. GENERAL** *NK: Note on numbering.* *Please note that in this guide, there are cross references to other clauses within the guide and cross references also to JSSS clause numbers. I had thought that as a similar numbering system is used in both documents, there may be duplication and referencing errors, however there is no great level of cross reference and as this has always been made to "JSSS 1.22" or "GC 34", I think that there is no need for different numbering.* NK6/2: Agreed to change numbering.. **1.1 Purpose** (1) This guide is prepared and issued for the information and assistance of Executing Agencies and (where applicable) their consultants for use in the preparation of Bidding and Contract Documents for Projects where such agencies have agreed with JICA that JSSS shall be adopted. (2) Definitions and abbreviations used in this guide shall be the same as in JSSS. (3) Reference to "Executing Agencies" in this guide shall be deemed to include their consultants which have been appointed to provide design stage services in accordance with JICA requirements. (4) If the user has questions regarding the use of JSSS, the appropriate JICA's official should be consulted. (5) This guide is for information only and will not form a part of any Contract for the execution of any Works. **1.2 Objective of JSSS** (1) As noted in JSSS, JICA requires that all parties engaged upon their ODA Projects shall endeavour to establish and maintain a culture ensuring human security and the maintenance of human rights as an essential and fundamental feature. (2) The common objective shall be the achievement of a zero-accident rate on the Works, adopting the slogan of "Safety First" by creating a working environment where health and safety are of the highest priority. (3) To assist with achieving this objective, JICA has published the JICA Standard Safety Specification (referred to as "JSSS"), which JICA wishes to be adopted for future selected Projects by the Executing Agencies for such Projects. **1.3 Effectiveness** JSSS has been published on-line by JICA~~.~~ *Unless otherwise specifically agreed by the parties to the Loan Agreement for particular Projects, JSSS* ~~and it~~ shall become effective and used by Executing Agencies ~~for particular Projects *on the date that the Loan Agreement for that Project is executed and* where the parties to such Loan Agreement have formally and specifically agreed to adopt JSSS~~ as the technical basis for Health and Safety management on that Project. (JC2)	**JICA STANDARD SAFETY SPECIFICATION (JSSS)** **GUIDE FOR USE OF EXECUTING AGENCIES** NK6/2: We considers MD's suggestion to rename is proper, so we propose to rename this document as "Guide for Use of Executing Agencies". **1. GENERAL** **1.1 Purpose** (1) This guide is prepared and issued for the information and assistance of Executing Agencies and (where applicable) their consultants for use in the preparation of Bidding and Contract Documents for Projects where such agencies have agreed with JICA that JSSS shall be adopted. (2) Definitions and abbreviations used in this guide shall be the same as in JSSS. (3) Reference to "Executing Agencies" in this guide shall be deemed to include their consultants which have been appointed to provide design stage services in accordance with JICA requirements. (4) If the user has questions regarding the use of JSSS, the appropriate JICA's official should be consulted. (5) This guide is for information only and will not form a part of any Contract for the execution of any Works. **1.2 Objective of JSSS** (1) As noted in JSSS, JICA requires that all parties engaged upon their ODA Projects shall endeavour to establish and maintain a culture ensuring human security and the maintenance of human rights as an essential and fundamental feature. (2) The common objective shall be the achievement of a zero-accident rate on the Works, adopting the slogan of "Safety First" by creating a working environment where health and safety are of the highest priority. (3) To assist with achieving this objective, JICA has published the JICA Standard Safety Specification (referred to as "JSSS"), which JICA wishes to be adopted for future selected Projects by the Executing Agencies for such Projects. **1.3 Effectiveness** JSSS has been published on-line by JICA. Unless otherwise specifically agreed by the parties to the Loan Agreement for particular Project~~s~~, JSSS shall become effective and used by Executing Agencies as the technical basis for Health and Safety management on that Project.

and executing agency not to apply JSSS at the time of L/A.
NK: I have no comment. Please review this modification.

1.1.4. Content

(1) JSSS specifies the minimum health and safety requirements to be complied with by the Contractor throughout the execution of the Works.

(2) JSSS contains general requirements for health and safety management with procedural requirements for the preparation, submission, review and response processes for Method Statements and Safety Plans for the safe execution of the Works, involvement of Employer, Engineer and other contractors, together with requirements for general administration and management of health and safety.

1.2. Application to Grant Aid and other Projects

1.2.1. General

(1) JSSS has been drafted to apply to JICA Loan Projects which are usually based upon the Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer, Multilateral Development Bank Harmonised Edition, June 2010.

(2) JSSS ~~shall~~ may (JC2) (apply equally to other JICA assisted Projects that have been awarded under different forms of contract ~~including those under Contractor design contracts and contracts under the JICA Grant Aid programme.~~ (JC2) When so used, suitable modification shall be required to the definitions and text of JSSS and the Bidding Documents for those Projects to ensure compatibility and consistency with the relevant contract requirements for the Project, reflecting the same intentions, standards and procedures for improving health and safety.

JC2: Let's stay with "may" at this moment, not to trigger a civil war with the Grant aid people inside JICA....
NK: I think it is better to delete "including those under Contractor design contracts and contracts under the JICA Grant Aid programme." to avoid unnecessary conflict in JICA.

JC2: We modified so that JSSS would be enforced to the Project unless agreed by JICA and executing agency not to apply JSSS at the time of L/A.
NK: I have no comment. Please review this modification.

In principle, I suggest that JSSS can only be applied when it offers a higher standard of safety than any local laws and regulations (which do often exist) and then only if specifically agreed between Government, Executing Agency and JICA before Loan Agreement is finalised.

I feel that the incorporation of JSSS must be clearly agreed and specifically agreed that it can and will be used not assumed as a default according to your proposed amendment. Otherwise it may be established during implementation that local laws and regulations do exist and must then take legal priority over JSSS in full or in part, thereby complicating the effectivity.

In some cases, it may be necessary for loan recipient governments to a enact a further local law to ensure that where local laws or regulations are found to exist, JSSS will prevail and apply on the particular Project as an agreed term of the Loan.

Otherwise I can only rely on JICA advice of their intentions for implementation and effectiveness and therefore have no further comment.

NK6/2: No comment.

1.4 Content

(1) JSSS specifies the minimum health and safety requirements to be complied with by the Contractor throughout the execution of the Works.

(2) JSSS contains general rules for health and safety management with procedural requirements for the preparation, submission, review and response processes for Method Statements and Safety Plans to encourage the safe execution of the Works. JSSS further describes the involvement of Employer, Engineer and other contractors, and provides requirements for general administration and management of health and safety.

1.5 Application to Grant Aid and other Projects

(1) JSSS has been drafted to apply to JICA Loan Projects ~~which are usually~~ based upon the Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer, Multilateral Development Bank Harmonised Edition, June 2010.

Suggest deletion gives better wording

(2) JSSS ~~shall~~ may (JC2) (apply equally to other JICA assisted Projects that have been awarded under different forms of contract ~~including those under Contractor design contracts and contracts under the JICA Grant Aid programme~~. (JC2)When so used, suitable modification shall be made ~~required~~ to the definitions and text of JSSS and the Bidding Documents for those Projects to ensure compatibility and consistency with the relevant contract requirements for the Project, reflecting the same intentions, standards and procedures for improving health and safety.

JC2: Let's stay with "may" at this moment, not to trigger a civil war with the Grant aid people inside JICA....
NK: I think it is better to delete "including those under Contractor design contracts and contracts under the JICA Grant Aid programme." to avoid unnecessary conflict in JICA.

1.4 Content

(1) JSSS specifies the minimum health and safety requirements to be complied with by the Contractor throughout the execution of the Works.

(2) JSSS contains general rules for health and safety management with procedural requirements for the preparation, submission, review and response processes for Method Statements and Safety Plans to encourage the safe execution of the Works. JSSS further describes the involvement of Employer, Engineer and other contractors, and provides requirements for general administration and management of health and safety.

1.5 Application to Grant Aid and other Projects

(1) JSSS has been drafted to apply to JICA Loan Projects based upon the Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer, Multilateral Development Bank Harmonised Edition, June 2010.

(2) JSSS may apply equally to other JICA assisted Projects that have been awarded under different forms of contract. ~~including those under Contractor design contracts and contracts under the JICA Grant Aid programme~~. When so used, suitable modification shall be made to the definitions and text of JSSS and the Bidding Documents for those Projects to ensure compatibility and consistency with the relevant contract requirements for the Project, reflecting the same intentions, standards and procedures for improving health and safety.

(NK6/2: NK requests JICA to review the above deletion is correct or not.)

	Yes, I agree with the possible exclusion of Grant aid projects in this way. *However, please note that some of the major ODA projects funded by JICA and at high risk of accident (including for example Jakarta and other MRT projects) are executed on the FIDIC Yellow Book Conditions of Contract for Contractor design.* *I think that JSSS could be reasonable easy to adapt for use with FIDIC Yellow book.* *It would be a missed opportunity if these major inner-city infra. projects are not to be brought within the coverage of JSSS and there is no real reason why they should or could not be covered.* *I suggest that JICA may wish to retain the wording "that have been awarded under different forms of contract including those under Contractor design contracts" and maybe also leave this as "shall" and not "may".* *Suggest change improves the wording.* NK6/2: JICA is planning to prepare document like JSSS for Yellow Book. We leave as above. NK6/2: NK requests JICA to review the above NK proposal of deletion is correct or not.	
1.3. Incorporation of JSSS into Bids and Contracts 1.3.1. General *Unless otherwise specifically agreed by the parties to the Loan Agreement for particular Projects.~~Where the parties to a Loan Agreement have specifically agreed to adopt JSSS for a new Project~~*, the Bidding Documents shall clearly state that ~~this and~~ Bids will be requested on the basis that JSSS is adopted~~this basis~~. (JC3) NK: SBD, Section II. Bid Data Sheet can be neither modified nor added new items, so we will delete the above (…state this with suitable addition to Section II. Bid Data Sheet and…). We consider the above sentence needs to be modified. *0. I have modified as above however, where in the Instructions to Bidders is this now to be stated? There should be no change to the Bidding Documents unless prescribed in the SBD.* *1. I still think that it is necessary to update the SBD in future.* JC3: Modified as above.	**1.6 Incorporation of JSSS into Bids and Contracts** *Unless otherwise specifically agreed by the parties to the Loan Agreement for particular Projects.~~Where the parties to a Loan Agreement have specifically agreed to adopt JSSS for a new Project~~*, the Bidding Documents shall clearly state that ~~this and~~ Bids will be requested on the basis that JSSS is adopted~~this basis~~. (JC3) NK: SBD, Section II. Bid Data Sheet can be neither modified nor added new items, so we will delete the above (…state this with suitable addition to Section II. Bid Data Sheet and…). We consider the above sentence needs to be modified. *I have modified as above however, where in the Instructions to Bidders is this now to be stated? There should be no change to the Bidding Documents unless prescribed in the SBD.* *I still think that it is necessary to update the SBD in future.* JC3: Modified as above. *See comment against 1.1.3 above, otherwise no further comment.* NK6/2: No comment.	**1.6 Incorporation of JSSS into Bids and Contracts** Unless otherwise specifically agreed by the parties to the Loan Agreement for particular Project~~s~~, the Bidding Documents shall clearly state that Bids will be requested on the basis that JSSS is adopted.
1.3.2. Safety Specification and Technical Specification (1) JSSS shall be included as a part of the Specification for the Works as illustrated in the following Figure *[Incorporation of JSSS in Bid and Contract Documents]*. ~~JSSS shall be included as a part of t~~The Specification for the Works ~~, which~~ shall be subdivided into two parts namely: (JC4) (a) The Project Safety Specification (including JSSS), and (b) other parts of the ~~The Technical~~ Specification which shall comprise the specification for the general and technical aspects of the Works, excluding requirements for health and safety. (JC4) JC4: Modified as above.	**1.7 Structure of Specification ~~and Technical Specification~~** *If the creation of and reference to Technical Specification is not to be adopted, then the heading requires change also.* (1) JSSS shall be included as a part of the Specification for the Works as illustrated in the following Figure 1.1 *[Incorporation of JSSS into Bid and Contract Documents]*. ~~JSSS shall be included as a part of t~~The Specification for the Works ~~, which~~ shall be subdivided into two parts namely: (JC4) (a) The Project Safety Specification (including JSSS); and (b) other parts of the ~~The Technical~~ Specification which shall comprise the specification for the general and technical aspects of the Works, excluding requirements for health and safety. (JC4) JC4: Modified as above.	**1.7 Structure of Specification** (1) JSSS shall be included as a part of the Specification for the Works as illustrated in the following Figure 1.1 [Incorporation of JSSS into Bid and Contract Documents]. The Specification for the Works shall be subdivided into two parts namely: (a) The Project Safety Specification (including JSSS); and (b) other parts of the Specification which shall comprise the specification for the general and technical aspects of the Works, excluding requirements for health and safety. (NK6/2: NK requests JICA to review (b) again as mentioned in the middle column..)

(2) The Project Safety Specification shall consist of two (2) parts namely:

(a) Part 1: JICA Standard Safety Specification (JSSS):

Comprising JSSS as issued at the base date of the Contract

(b) Part 2: Particular Safety Specification:

Comprising a schedule containing the particular additions and modifications to JSSS, necessary to create a precise and relevant specification of the health and safety requirements for the Project. ~~required amendments to the various requirements of as necessary to create a clear and precise safety specification for the Works.~~ (JC5)

(3) ~~The "Technical Specification" shall comprise the specification for the general and technical aspects of the Works, excluding requirements for health and safety.~~ (JC5)

JC5: Modified as above because this is the same expression with the definition of PSS.

The word "addition" is important.

Please note that the introduction of "Technical Specification" created two distinctly separate parts to the "Specification", namely the Particular Safety Specification and the Technical Specification.

The change to "Project Safety Specification" and "other parts of the Specification" is no longer two "parts" it implies that there are more than two "parts" and is therefore less clear.

It may also somehow complicate the priority of documents in Figure 1.1:

As written was clear:

(Last) 2. The Project Safety Specification shall have priority over the Technical Specification in respect of health and safety matters.

As revised is less clear as the "the Specification" already includes the Project Safety Specification of which it (and JSS) is already a part and the PSS cannot have priority over itself:

(Revised) 2. The Project Safety Specification shall have priority over the other parts of the Specification in respect of health and safety matters.

NK6/2: It seems there is contradiction in (b) above. The Project Safety Specification (PSS) cannot have priority over the other parts of the Specification (OPS) because OPS excluding H&S requirements cannot compare with PSS.

NK6/2: NK requests JICA to review (b) again.

(2) The Project Safety Specification shall consist of two parts namely:

(a) Part 1: JICA Standard Safety Specification (JSSS):

Comprising JSSS as issued at the base date of the Contract

(b) Part 2: Particular Safety Specification:

Comprising a schedule containing the particular additions and modifications to JSSS, necessary to create a precise and relevant specification of the health and safety requirements for the Project. ~~required amendments to the various requirements of as necessary to create a clear and precise safety specification for the Works.~~ (JC5)

(3) ~~The "Technical Specification" shall comprise the specification for the general and technical aspects of the Works, excluding requirements for health and safety.~~ (JC5)

JC5: Modified as above because this is the same expression with the definition of PSS.

The word "addition" is important.

No comment.

(2) The Project Safety Specification shall consist of two parts namely:

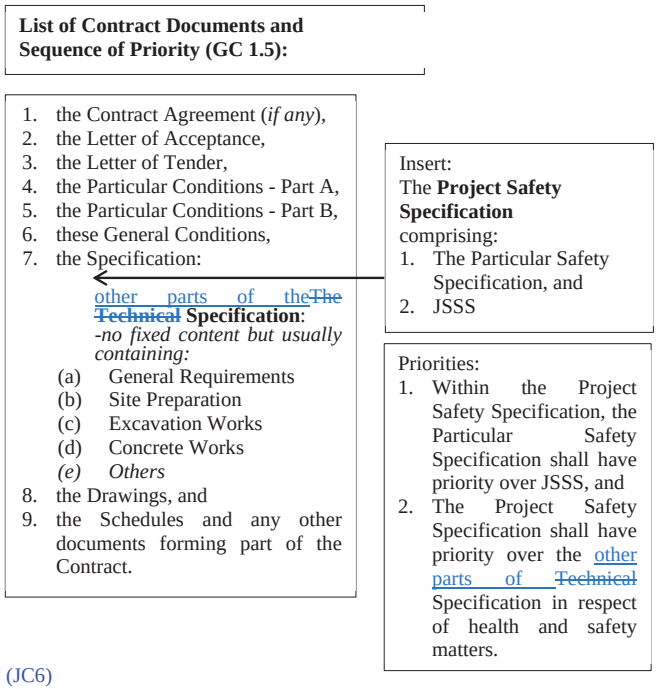
(a) Part 1: JICA Standard Safety Specification (JSSS):

Comprising JSSS as issued at the base date of the Contract

(b) Part 2: Particular Safety Specification:

Comprising a schedule containing the particular additions and modifications to JSSS, necessary to create a precise and relevant specification of the health and safety requirements for the Project.

Figure: Incorporation of JSSS in Bid and Contract Documents



(JC6)

JC6: Modified by JICA.

1.3.3. Drafting of Particular Safety Specification

(1) JICA emphasise the importance of the Executing Agency assisting in the pursuit of a zero-accident rate on the Works, creating a safe working environment for the Works, by including for example: sufficient time for Bidding, reasonable Time(s) for Completion; reasonable, continuous and unobstructed access to the Site, detailed site information and sufficient ~~Site~~ *area(s) for the Site (including* , working and storage areas), all wherever possible. Requirements shall be clearly described in the Bidding Documents. (JC7)

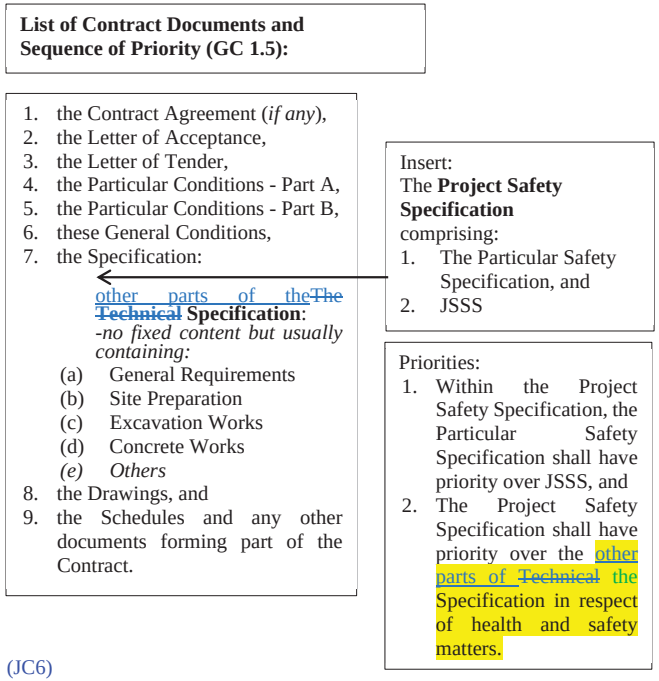
NK: We considers it seems better to add “for the achievement of a zero-accident rate on the Works” to (1) .

2. OK added above and edited.

JC7: modified to be in conformity with the definition in FIDIC.

NK: YH has no comment to the above modification.

Figure 1.1: Incorporation of JSSS into Bid and Contract Documents



(JC6)

JC6: Modified by JICA

1.8 Drafting of Particular Safety Specification

(1) JICA emphasise the importance of the Executing Agency assisting in the pursuit of a zero-accident rate on the Works, for example by creating a safe working environment for the Works, by including for example: sufficient time for Bidding, reasonable Time(s) for Completion; reasonable, continuous and unobstructed access to the Site, detailed site information and sufficient ~~Site~~ *area(s) for the Site (including* , working and storage areas), all wherever possible. Requirements shall be clearly described in the Bidding Documents. (JC7)

NK: We considers it seems better to add “for the achievement of a zero-accident rate on the Works” to (1) .

OK added above and edited.

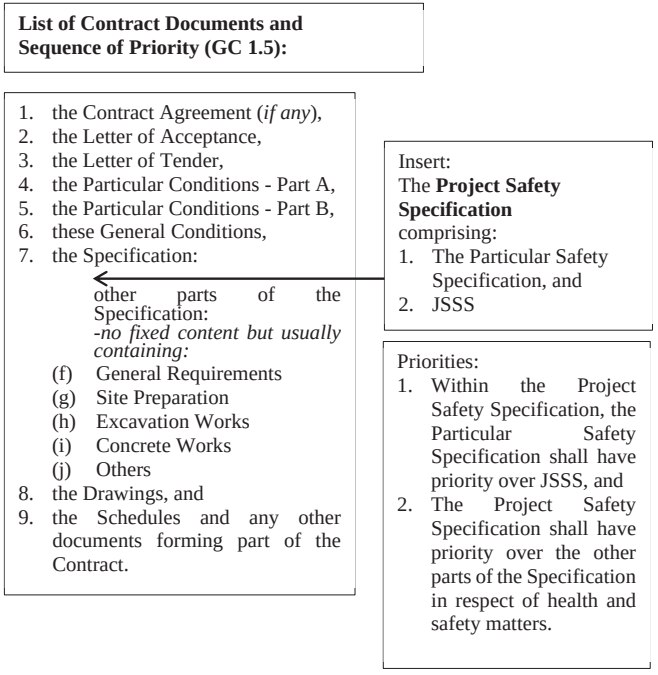
JC7: modified to be in conformity with the definition in FIDIC.

NK: YH has no comment to the above modification.

The addition of “detailed site information” is a change to the Contract as it not incumbent upon the Employer to provide this. The information that should be made available is already described in the first sentence of GC 4.10 and I do not suggest that this is changed.

If JICA reference to Site information is required, I suggest that the addition could perhaps be:

Figure 1.1: Incorporation of JSSS into Bid and Contract Documents



1.8 Drafting of Particular Safety Specification

(1) JICA emphasise the importance of the Executing Agency assisting in the pursuit of a zero-accident rate on the Works, for example by creating a safe working environment for the Works, by including for example: sufficient time for Bidding, reasonable Time(s) for Completion; reasonable, continuous and unobstructed access to the Site, available and relevant data on sub-surface and hydrological conditions at the Site, as required by GC 4.10, and sufficient area(s) for the Site (including, working and storage areas), all wherever possible. Requirements shall be clearly described in the Bidding Documents.

	"available and relevant data on sub-surface and hydrological conditions at the Site, as required by GC 4.10." NK6/2: Agreed to revise as MD's suggestion.	
(2) As JSSS is a specification of minimum requirements for compliance by the Contractor, there shall be no substantial deletion or alteration of JSSS requirements in the Particular Safety Specification unless so justified due the scope of Works. *On the other hand, if the Project specific environment/context so requires, additional safety requirements shall be developed and included in the Particular Safety Specification.* (JC8)	(2) As JSSS is a specification of minimum requirements for compliance by the Contractor, there shall be no substantial deletion or alteration of JSSS requirements in the Particular Safety Specification unless so justified due the scope of Works, unless due to *Project specific requirements mean that additional or different safety requirements are to apply. In such cases, these additional or different requirements shall be developed and included in the Particular Safety Specification.* (JC8) *OK, I have edited the required changes as above.* NK6/2: To MD, The modified sentence is too long to be able to understand the meaning. NK revised it for MD's further editing.	(2) As JSSS is a specification of minimum requirements for compliance by the Contractor, there shall be no substantial deletion or alteration of JSSS requirements in the Particular Safety Specification unless so justified due the scope of Works. When additional or different safety requirements are to be applied due to Project specific requirements, these requirements shall be developed and included in the Particular Safety Specification. (NK6/2: To MD, The modified sentence is too long to be able to understand the meaning. NK revised it for MD's further editing.)
(3) Executing Agencies shall take care when they (or their consultants) prepare the Technical Specification and other parts of the Bidding Documents where JSSS is to be adopted, to ensure that there is no duplication of *or contradiction to* (JC8) the health and safety requirements contained in the Project Safety Specification. JC8: Modified.	(3) Executing Agencies shall take care when they ~~(or their consultants)~~ prepare ~~the Technical~~ other parts of the Specification and other parts of the Bidding Documents where JSSS is to be adopted, to ensure that there is no duplication of *or contradiction to* the health and safety requirements contained in the Project Safety Specification. JC8: Modified. *The use of "Technical Specification" requires further consideration and amendment, here and elsewhere in the document.* *Otherwise OK, no comment* NK6/2: Agreed.	(3) Executing Agencies shall take care when they prepare other parts of the Specification and other parts of the Bidding Documents where JSSS is to be adopted, to ensure that there is no duplication of or contradiction to the health and safety requirements contained in the Project Safety Specification.
1.3.4. Composition and Priority of Specifications: (1) The Project Safety Specification, together with the Technical Specification shall collectively form the "Specification" as defined in the Contract. (2) For the purposes of interpretation, the priority of the documents forming the Specification shall be in accordance with the following: (a) The "Project Safety Specification" shall have priority over other parts of the Specification in respect of health and safety requirements; and (b) Within the "Project Safety Specification" the Particular Safety Specification shall have priority over JSSS. (3) If an ambiguity or discrepancy is found in the documents, the Engineer shall issue any necessary clarification or instruction.	~~*1.3.1 Composition and Priority of Specifications:*~~ ~~(1) The Project Safety Specification, together with the Technical Specification shall collectively form the "Specification" as defined in the Contract.~~ ~~(2) For the purposes of interpretation, the priority of the documents forming the Specification shall be in accordance with the following:~~ ~~(a) The "Project Safety Specification" shall have priority over other parts of the Specification in respect of health and safety requirements; and~~ ~~(b) Within the "Project Safety Specification" the Particular Safety Specification shall have priority over JSSS.~~ ~~(3) If an ambiguity or discrepancy is found in the documents, the Engineer shall issue any necessary clarification or instruction.~~ *The above can be deleted as it is largely duplicated with 1.7.* NK6/2: Agreed.	
1.3.5. Ongoing Projects (1) Unless otherwise agreed between JICA and the Executing Agency, JSSS shall not be automatically used on all JICA funded Projects, JSSS shall only be used when it becomes effective on the particular ODA Project as described in this User Guide 1.1.3 [*Effectiveness*]. (2) Where JSSS is already in use on any Project and by further agreement between JICA and the Executing Agency, future	**1.9 Use on Ongoing Projects** (1) Unless otherwise agreed between JICA and the Executing Agency, JSSS shall not be automatically used on all JICA funded Projects, JSSS shall only be used when it becomes effective on the particular ODA Project as described in this guide, in clause 1.1.3 [*Effectiveness*].	**1.9 Use on Ongoing Projects** (1) Unless otherwise agreed between JICA and the Executing Agency, JSSS shall not be automatically used on all JICA funded Projects, JSSS shall only be used when it becomes effective on the particular ODA Project as described in this guide, in clause 1.1.3 [*Effectiveness*].

issues/revisions of JSSS may be applied after the date that such future issues/revisions are published on line subject to issue by the Engineer of an appropriate Variation under GC 13.1 [*Right to Vary*].

1.3.6. JICA Standard Bidding Documents

(1) JICA intend to amend and re-issue the "Standard Bidding Documents Under Japanese ODA Loans, Procurement of Works", published by the Japan International Cooperation Agency (JICA) (hereinafter referred to as "JSBD") to cover the required amendments to accommodate JSSS. (JC9)

(2) In order that JSSS can be used without delay on particular Projects, the Bidding Documents for such Projects shall be drafted to take account of the above and following amendments in advance of the publication of the next issue of JSBD.(JC9)

NK: The amendment to JSBD is not necessary as the PC is not amended related with JSSS now. We consider the above (1) and (2) can be deleted and propose to replace them with the following if appreciate:

1) To make the Project Safety Specification as one of Bidding Documents, it shall be included as a part of Specification described in Section VI. Works Requirement of Standard Bidding Documents Under Japanese ODA Loans, Procurement of Works", published by the Japan International Cooperation Agency (JICA) (hereinafter referred to as "JSBD").

3. Yes, I fully understand this however this is not PC it is the Instructions to Bidders (ITB).

4. I had prepared appropriate information in the earlier Issue 6 (please refer to Annex 1.3 Required Amendments to JICA Standard Bidding Documents) but JICA have deleted this and instructed that no change in SBD is to be suggested.

5. We have dealt with PC in a manner which should probably be OK but the document is silent on ITB, and some thought needs to be given to this.

6. The following needs some mention:

JC9: Let's keep this and 1) to 3) below.

1) The form of "Safety Plan" in Section IV. Bidding Forms shall include an explanatory note to the Bidders to inform them that they shall submit a safety plan in their bid in accordance with ~~Section IV. Bidding Forms - BF-39, SBD page 173 requires improvement by copy pasting the content of~~ Annex 1.2 of JSSS "Bid Stage Safety Plan". (JC10)

2) HSO shall be specified as one of the Key personnel to be evaluated in Section III. Evaluation and Qualification Criteria ~~e.g. SBD page 110 items 1.1.1, needs change to included reference to HSO~~, (JC10)

3) Bidders Safety Declaration shall be added in Section IV Bidding Forms~~requires some instruction as to where in the Bid forms, this is to be included~~. (JC10)

7. I suggest it is better if the above is left in for now so that this can be discussed between JICA and NK.

JC10: JICA may time to time bring "mini-update" into our SBD. So, we prefer not to mention the concrete page number, which may be changed.

(2) Where JSSS is already in use on any Project and by further agreement between JICA and the Executing Agency, future issues/revisions of JSSS may be applied after the date that such future issues/revisions are published on line subject to issue by the Engineer of an appropriate Variation under GC 13.1 [*Right to Vary*].

1.10 JICA Standard Bidding Documents

(1) JICA intend to amend and re-issue the "Standard Bidding Documents Under Japanese ODA Loans, Procurement of Works", published by the Japan International Cooperation Agency (JICA) (hereinafter referred to as "JSBD") to cover the required amendments to accommodate JSSS. (JC9)

(2) In order that JSSS can be used without delay and where so agreed to be used on particular Projects, the Bidding Documents for such Projects shall be drafted to take account of this guide in advance of ~~the~~ publication of the next issue of JSBD.(JC9)

NK: The amendment to JSBD is not necessary as the PC is not amended related with JSSS now. We consider the above (1) and (2) can be deleted and propose to replace them with the following if appreciate:

1) To make the Project Safety Specification as one of Bidding Documents, it shall be included as a part of Specification described in Section VI. Works Requirement of Standard Bidding Documents Under Japanese ODA Loans, Procurement of Works", published by the Japan International Cooperation Agency (JICA) (hereinafter referred to as "JSBD").

Yes, I fully understand this however this is not PC it is the Instructions to Bidders (ITB).

I had prepared appropriate information in the earlier Issue 6 (please refer to Annex 1.3 Required Amendments to JICA Standard Bidding Documents) but JICA have deleted this and instructed that no change in SBD is to be suggested.

We have dealt with PC in a manner which should probably be OK but the document is silent on ITB, and some thought needs to be given to this.

The following needs some mention:

JC9: Let's keep this and 1) to 3) below.

1) The form of "Safety Plan" in Section IV. Bidding Forms shall include an explanatory note to the Bidders to inform them that they shall submit a safety plan in their bid in accordance with ~~Section IV. Bidding Forms BF-39, SBD page 173 requires improvement by copy pasting the content of~~ Annex 1.2 of JSSS "Bid Stage Safety Plan". (JC10)

2) HSO shall be specified as one of the Key personnel to be evaluated in Section III. Evaluation and Qualification Criteria ~~e.g. SBD page 110 items 1.1.1, needs change to included reference to HSO~~, (JC10)

3) Bidders Safety Declaration shall be added in Section IV Bidding Forms~~requires some instruction as to where in the Bid forms, this is to be included~~. (JC10)

I suggest it is better if the above is left in for now so that this can be discussed between JICA and NK.

JC10: JICA may time to time bring "mini-update" into our SBD. So, we prefer not to mention the concrete page number, which may be changed.

Please see above drafting changes.

NK6/2: Agreed.

(2) Where JSSS is already in use on any Project and by further agreement between JICA and the Executing Agency, future issues/revisions of JSSS may be applied after the date that such future issues/revisions are published on line subject to issue by the Engineer of an appropriate Variation under GC 13.1 [*Right to Vary*].

1.10 JICA Standard Bidding Documents

(1) JICA intend to amend and re-issue the "Standard Bidding Documents Under Japanese ODA Loans, Procurement of Works", published by the Japan International Cooperation Agency (JICA) (hereinafter referred to as "JSBD") to cover the required amendments to accommodate JSSS.

(2) In order that JSSS can be used without delay and where so agreed to be used on particular Projects, the Bidding Documents for such Projects shall be drafted to take account of this guide in advance of publication of the next issue of JSBD.

(3) The form of "Safety Plan" in Section IV. Bidding Forms shall include an explanatory note to the Bidders to inform them that they shall submit a safety plan in their bid in accordance with Annex 1.2 of JSSS "Bid Stage Safety Plan"

(4) HSO shall be specified as one of the Key personnel to be evaluated in Section III. Evaluation and Qualification Criteria,

(5) Bidders Safety Declaration shall be added in Section IV Bidding Forms.

1.4. The Particular Safety Specification 1.4.1. General (1) The Particular Safety Specification shall be carefully and precisely drafted by amending the various general requirement clauses of JSSS by adding particular requirements to ensure that the scope is precisely specified so that the Contractor's obligations are clear and unambiguous. (2) The amendments shall cover the examples listed below, noting that this listing is not exhaustive. (3) Any reference to "the Particular Safety Specification" shall mean that either full requirements are required to be stated in the Particular Safety Specification or that reference is to be made in that specification to parts of the Technical Specification or other documents comprised in the Contract, where full requirements are stated.(JC10) *Still Under consideration by DCI:* JC10: Not very clear. Would you rephrase? (4) A check list shall be included at the beginning of the Particular Safety Specification, in this User Guide which shall list all of the clauses in the following table, state briefly what action has been taken and also indicate where full requirements are stated. NK: The Check list may be helpful for the Employer to understand and avoid missing items. *Yes but it is also necessary for us to prepare the detail first and then decide if it is good idea to give the Employer an easy option.* *This was originally designed by is to allow JICA to check whether changes had been incorporated properly but this is not the case and there appears to be little point in preparing a check list if nobody is checking.*	**2 PARTICULAR SAFETY SPECIFICATION** **2.1 Drafting Generally** (1) The Particular Safety Specification shall be carefully and precisely drafted by amending the various general requirement clauses of JSSS by adding particular requirements to ensure that the scope is precisely specified and so that the Contractor's obligations shall be clear and unambiguous. (2) The amendments shall cover the examples listed in the table in clause 2.2 below, noting that this listing is not exhaustive. ~~(3) Any reference to "the Particular Safety Specification" shall mean that either full requirements are required to be stated in the Particular Safety Specification or that reference is to be made in that specification to parts of the Technical Specification or other documents comprised in the Contract, where full requirements are stated.(JC10)~~ JC10: Not very clear. Would you rephrase? *Rephrased as follows:* NK6/2: agreed. (3) The use in JSSS of the phrase "specified in the Particular Safety Specification" shall mean that either full requirements shall be specified in the Particular Safety Specification or that reference shall be made in the Particular Safety Specification to other particular parts of the Specification or other documents comprised in the Contract, where full requirements are so specified. ~~(4) A checklist shall be included with the Particular Safety Specification, which shall list all of the clauses in the following table, state briefly what action has been taken and also indicate where full requirements are specified so that this can be checked, if required.~~ NK: The Check list may be helpful for the Employer to understand and avoid missing items. Yes but it is also necessary for us to prepare the detail first and then decide if it is good idea to give the Employer an easy option. This was originally designed by is to allow JICA to check whether changes had been incorporated properly but this is not the case and there appears to be little point in preparing a check list if nobody is checking. The Employer can check against the following tabulated list and there is no point in duplicating this. If JICA was checking, I would suggest a separate checklist as drafted in my earlier issues. NK6/2: agreed.	**2 PARTICULAR SAFETY SPECIFICATION** **2.1 Drafting Generally** (1) The Particular Safety Specification shall be carefully and precisely drafted by amending the various general requirement clauses of JSSS by adding particular requirements to ensure that the scope is precisely specified and so that the Contractor's obligations shall be clear and unambiguous. (2) The amendments shall cover the examples listed in the table in clause 2.2 below, noting that this listing is not exhaustive. (3) The use in JSSS of the phrase "specified in the Particular Safety Specification" shall mean that either full requirements shall be specified in the Particular Safety Specification or that reference shall be made in the Particular Safety Specification to other particular parts of the Specification or other documents comprised in the Contract, where full requirements are so specified.

1.4.2. JSSS Items to be Considered for the Particular Safety Specification.
The following table still requires our further coordination with all other chapters of JSSS. Further editing and addition is necessary and all clause numbering and descriptions ultimately require to be coordinated and updated

JSSS Reference	Particular Safety Specification Requirements
~~1.4.10 Compliance with JSSS and Other Regulations~~	~~*The Contractor's obligations to provide temporary services and facilities generally finish at the end of the Time for Completion plus any additional period(s) within the Defects Notification Period (DNP) when the Contractor may be completing any outstanding work or remedying any defective work. If for any reason the Contractor is required to maintain a further presence at the Site during the DNP, this shall be clearly stated in the Particular Safety Specification together with the reasons, scope and duration of such presence.*~~ ~~*Suitable facility for pricing shall also be included in* **Section IV. Bidding Forms, Bill of Quantities**, *Bill No. 1: General Items, with unit rate for provision being shown as "month".*~~ ~~*The method of payment to the Contractor shall also be specified*~~ (JC10) **NK6/2:** JICA と MD 氏の意図(中央欄)が異なっていますため、1.7.10 の変更を提案致します。 JC10: Please see our comments to JSSS 1.4.10 (below). *(Issue 7 before revision)* *1.4.10 Unless otherwise specified in the Particular Safety Specification, the Contractor shall comply with the requirements of JSSS throughout the Time for Completion and Defects Notification Period. ,* ~~*during any additional period(s) within the Defects Notification Period when the Contractor may be completing any outstanding work or remedying any defective work and as may be further specified in the Particular Safety Specification.*~~ (Comment to JSSS 1.4.10) We are afraid that our intention was not very much understood by NK/MD. At any time during DNP, the Contractor may be required to intervene for repair. So safety measures must continue to be kept during all DNP. With this modification, Particular Safety Specification in User Guide will not be necessary any more. (NK added "the sentence underlined is deleted".) NK: 1.4.10 is revised below. *(Issue 8 after revision by JICA comment)* *1.4.10 Unless otherwise specified in the Particular Safety Specification, the Contractor shall comply with the requirements of JSSS throughout the Time for Completion and Defects Notification Period.* NK: 当初、Time for Completion だけを第 1 章に規定していましたが、DNP で行う修理作業の安全対策も JSSS に規定すべきとの意見があり、DNP を追記し

2.2 Particular Requirements

In addition to the requirements described in this guide in Clause 2.1 [*Drafting Generally*], the Executing Agency shall consider the requirements of all clauses in the following table and include appropriate clauses in the Particular Safety Specification:

~~JSSS~~ Reference	Particular Safety Specification Requirements
~~1.4.10 Compliance with JSSS and Other Regulations~~ ~~*Regulations*~~ JSSS 1.4.10 Continued Compliance with JSSS throughout the DNP	~~*The Contractor's obligations to provide temporary services and facilities generally finish at the end of the Time for Completion plus any additional period(s) within the Defects Notification Period (DNP) when the Contractor may be completing any outstanding work or remedying any defective work. If for any reason the Contractor is required to maintain a further presence at the Site during the DNP, this shall be clearly stated in the Particular Safety Specification together with the reasons, scope and duration of such presence.*~~ ~~*Suitable facility for pricing shall also be included in* **Section IV. Bidding Forms, Bill of Quantities**, *Bill No. 1: General Items, with unit rate for provision being shown as "month".*~~ ~~*The method of payment to the Contractor shall also be specified*~~ (JC10) JC10: Please see our comments to JSSS 1.4.10. JC deleted. *Please refer to our comments in JSSS 1.4.10.* *We believe that interpretation of FIDIC requirements is not correct and if changed as suggested, this will create additional and incorrect obligations and cost for the Contractor (and JICA), that are not contractually correct or supportable.* *We recommend that the clause is correct as drafted and should be reinstated to avoid future problems. We have modified the drafting to make sure that all reasons for these requirements are made clear and fully understandable by the Executing Agencies and their consultants.* Please refer to GC 8.2 and note that the Contractor shall complete the whole of the Works within the "Time for Completion". The Contractor's obligations to provide temporary health and safety services and facilities for the use of the Employer's Personnel prescribed by JSSS (for which he is paid as part of the Contract Price) will in principle, finish at the date stated in the Taking-Over Certificate and shall not continue during the Defects Notification Period (DNP). All work should be completed by date stated in the Taking-Over Certificate such that the Employer can take over possession of the Works, occupy and use same. This may exclude minor outstanding work and defects remedial work which will not substantially affect the use of the Works for their intended purpose and which shall be finished or remedied by the Contractor as soon as possible

2.2 Particular Requirements

In addition to the requirements described in this guide in Clause 2.1 [*Drafting Generally*], the Executing Agency shall consider the requirements of all clauses in the following table and include appropriate clauses in the Particular Safety Specification:

Reference	Particular Safety Specification Requirements
1.4.10 Continued Compliance with JSSS throughout the DNP	The Contractor's obligations to provide temporary services and facilities generally finish at the end of the Time for Completion plus any additional period(s) within the Defects Notification Period (DNP) when the Contractor may be completing any outstanding work or remedying any defective work. If for any reason the Contractor is required to maintain a further presence at the Site during the DNP, this shall be clearly stated in the Particular Safety Specification together with the reasons, scope and duration of such presence as mentioned in 1.24 Accident Response Plan and 1.36 Health Matters hereunder in 2.2.

	ました。そのため、1.4.10 では DNP 期間まで JSSS の安全対策を実施することとなりました。その結果、請負者は医療施設やサービスも含め、対策を継続する必要があるという規定となりました。 MD 氏は、Taking Over Certificate(TOC)が出た時点で医療施設の提供は終了する、DNP 期間でも必要な施設は User Guide に規定するとしています。 NK 提案：JICA の意図と MD 氏の意見を合わせて次の変更を提案します。 *(Issue 8 proposed by NK)* *1.4.10 ~~Unless otherwise specified in the Particular Safety Specification~~, The Contractor shall comply with the requirements of JSSS throughout the Time for Completion and Defects Notification Period.* *The Contractor's obligations to provide temporary services and facilities finish at the end of the Time for Completion unless otherwise specified in the Particular Safety Specification.*		and within such reasonable time as is instructed by the Engineer. If the Contractor is still required to execute significant outstanding and remedial work affecting the Employer's use of the Works on the proposed date for taking over, then simply the Taking-Over Certificate should not be issued. Otherwise if outstanding and remedial works and are at acceptable levels and subject to compliance with the Contract, the Taking-Over Certificate can be issued and the Contractor can largely demobilise after the date stated in the certificate. The Contractor shall continue to assign (at his own cost) personnel for completing outstanding work or remedial work during and at the end of the DNP. Consequently, the Contractor has continuing obligations for the health and safety of his personnel for this purpose. Therefore, if the Employer requires the Contractor to continue with the provision of any of the temporary health and safety services and facilities required by JSSS during the DNP then this shall be particularly stated in the Particular Safety Specification together with the reasons, scope and duration(s) for such provision and associated conditions. Similarly, if the Employer requires that any of the Contractor's temporary health and safety services and facilities required by JSSS are to be transferred in future to the Employer, then these shall be listed and clearly described in the Particular Safety Specification and the same details given. ~~Separate items shall be included in the Bill of Quantities to allow pricing of the required services and facilities under this clause with separate lump sum items given for mobilisation and removal and monthly rate items given for ongoing provision and maintenance.~~ ~~The method of payment to the Contractor during the DNP shall also be specified given the differing rules for application and issue of Interim Certificates and retention during the DNP.~~ NK6/2: The issues discussed by JICA and MD are different how to specify continued compliance to requirements during the DNP stipulated in JSSS. JICA want to specify to continue for the Contractor to take safety measures for workers during the DNP. MD wants specify requirements for facilities and services such as medical services for the Employer during the DNP. We propose to revise 1.4.10 as shown below. *1.4.10 ~~Unless otherwise specified in the Particular Safety Specification~~, The Contractor shall comply with the requirements of JSSS throughout the Time for Completion and Defects Notification Period.* *The Contractor's obligations to provide temporary services and facilities finish at the end of the Time for Completion unless otherwise specified in the Particular Safety Specification.*		

~~1.10 Engineer's Safety Representative~~	~~*The Particular Safety Specification shall state if the Engineer will appoint a full-time Safety Representative as an assistant upon the Works.*~~ ~~*If no such requirement is specified in the Particular Safety Specification it is to be assumed that the Engineer or a duly authorised assistant shall act in a part-time capacity.*~~ (JC11) JC11: Please see our comment in JSSS 1.10	~~1.10 Engineer's Safety Representative~~	~~*The Particular Safety Specification shall state if the Engineer will appoint a full-time Safety Representative as an assistant upon the Works.*~~ ~~*If no such requirement is specified in the Particular Safety Specification it is to be assumed that the Engineer or a duly authorised assistant shall act in a part-time capacity.*~~ (JC11) JC11: Please see our comment in JSSS 1.10 *I have no comment or objection to this deletion.* NK6/2: agreed.		
1.12 Health and Safety Officer at the Site (HSO)	The general basis JSSS is that the HSO is required to be assigned full-time upon the Works and to spend all of his time on health and safety management. JICA advise that full-time assignment is the normal requirement and part-time or shared assignment is only allowable on extremely small Projects or when *part-time or shared assignment is justified with particular reasons*~~separate written justification has been provided by the Executing Agency~~ to JICA. In addition to stating as above, facility (JC12) for pricing the cost of HSO shall be included in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items, to "Provide HSO and staff" with unit rate for provision being shown as "month". JC12: What is "facility"? NK(YH): I understand that HSO may not be paid under BQ, is it correct? If so, I think facility will not be paid in BQ. NK(SS): Dasu Hydropower Project in Pakistan has included the payment for HSO in BQ and executed it. Quantity in months shall be of the required period for provision which will usually be the Time for Completion and any allowance as required during the Defects Notification Period. (JC13) NK: We think this shall be recorded in the Minutes of Discussion at JICA appraisal time. NK: May we know what facility do you expect? For example, transportation for HSO and his staff? By "facility": we mean allowing the Bidder the facility for pricing this requirement in his bid. Please let me know if you think we need to state facilities. JC13: It is necessary to consider how to pay for Safety Staff during DNP. It is doubtful to include payment for the Safety Staff during DNP in BQ. NKSS: Works in DNP is the responsibility of the Contractor, so the cost in the DNP shall be borne by the Contractor.	1.12 Health and Safety Officer at the Site (HSO)	Refer to JSSS 1.12 where the minimum required period of experience and types of qualification for the HSO are described. If different periods of experience or qualifications are a legal requirement under the Laws of the Country, then these shall be clearly stated in the Particular Safety Specification. The general basis JSSS is that the HSO is required to be assigned full-time upon the Works and to spend all of his time on health and safety management. JICA advise that such full-time assignment is the normal requirement and part-time or shared assignment is only allowable on extremely small Projects or when *part-time or shared assignment is justified with particular reasons*~~separate written justification has been provided by the Executing Agency~~ to JICA. *The above change is OK but is it JICA that reviews the justification and given reasons and at what stage?* *The requirement must be correct and clearly stated in the Bidding documents as a common basis and not changed thereafter.* *I suggest the following addition to accompany this change:* If the justification for part-time or shared assignment is acceptable to JICA, the agreed requirements shall be clearly stated in the Particular Safety Specification. NK6/2: JICA may not be involved in agreeing to the justification, so we deleted JICA. ~~In addition to stating as above, facility (JC12) for pricing the cost of HSO shall be included in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items, to "Provide HSO and staff" with unit rate for provision being shown as "month".~~ *I have revised the approach to the inclusion of pay items for JSSS with the Bid Bill of Quantities, please refer to 3. BILL OF QUANTITIES on the last page of this guide.*	1.12 Health and Safety Officer at the Site (HSO)	Refer to JSSS 1.12 where the minimum required period of experience and types of qualification for the HSO are described. If different periods of experience or qualifications are a legal requirement under the Laws of the Country, then these shall be clearly stated in the Particular Safety Specification. The general basis JSSS is that the HSO is required to be assigned full-time upon the Works and to spend all of his time on health and safety management. JICA advise that such full-time assignment is the normal requirement and part-time or shared assignment is only allowable on extremely small Projects or when part-time or shared assignment is justified with particular reasons. If the justification for part-time or shared assignment is acceptable, the accepted requirements shall be clearly stated in the Particular Safety Specification.

			This simplifies the text of this part and avoids any need for consistency checks. JC12: What is "facility"? NK(YH): I understand that HSO may not be paid under BQ, is it correct? If so, I think facility will not be paid in BQ. NK(SS): Dasu Hydropower Project in Pakistan has included the payment for HSO in BQ and executed it. *It did mean the facility for pricing but I have redrafted this as above.* ~~Quantity in months shall be of the required period for provision which will usually be the Time for Completion and any allowance as required during the Defects Notification Period. (JC13)~~ NK: We think this shall be recorded in the Minutes of Discussion at JICA appraisal time. NK: May we know what facility do you expect? For example, transportation for HSO and his staff? By "facility": we mean allowing the Bidder the facility for pricing this requirement in his bid. Please let me know if you think we need to state facilities. JC13: It is necessary to consider how to pay for Safety Staff during DNP. It is doubtful to include payment for the Safety Staff during DNP in BQ. NK: Works in DNP is the responsibility of the Contractor, so the cost in the DNP shall be borne by the Contractor. *Correct comment, it should not be paid.* *Redrafted anyway as above.*		
1.21 Skill Training	The Particular Safety Specification shall state whether classroom-based skill training of counterpart Operation Leaders is, or is not, required. The Contractor shall be expected in any event to be provide OJT via his senior personnel to local counterparts. The Particular Safety Specification shall state whether the Contractor is allowed to bring into the Country for use upon the Works any unqualified, unskilled or inexperienced foreign Contractor's Personnel. If skill training is required, the Particular Safety Specification shall state how many candidates shall be selected, for which skill groups and for how long. This shall be determined by the scope and nature of the Works.(JC14) JC14: Please modify referring to the 1.21 Skill Training modified by JICA.	1.21 Skill Training	~~The Particular Safety Specification shall state whether classroom-based skill training of *counterpart Operation Leaders* is, or is not, required. The Contractor shall be expected in any event to be provide OJT via his senior personnel to local counterparts.~~ *This original text may require further change dependent upon NK/JICA clarification of requirements, please refer to query in Chapter 1* ~~The Particular Safety Specification shall state whether the Contractor is allowed to bring into the Country for use upon the Works any unqualified, unskilled or inexperienced foreign Contractor's Personnel.~~ If skill training is required, the Particular Safety Specification shall state how many candidates shall be selected, for which skill groups and for how long. This shall be determined by the scope and nature of the Works. (JC14) JC14: Please modify referring to the 1.21 Skill Training modified by JICA. NK6/2: Modified 1.21 is copied in left column.	1.21 Skill Training	The Particular Safety Specification shall state whether the Contractor is allowed to bring into the Country for use upon the Works any unqualified, unskilled or inexperienced foreign Contractor's Personnel.

NK6/2: 1.21 is modified by JICA as below.

1.21 Skill Training

1.21.1 The Contractor is reminded of his obligations under GC 6.9 [Contractor's Personnel] which require that all Contractor's Personnel shall be appropriately qualified, skilled and experienced in their respective trades or occupations.

1.21.2 The Contractor is also reminded of his obligations under GC 6.1 [Engagement of Staff and Labour] according to which the Contractor is encouraged, to the extent practicable and reasonable, to mobilize the local human resources with appropriate qualifications and experience. However, if the qualified, skilled and experienced Contractor's Personnel required by the Contract is not available in the Country or not available in the numbers or of the standards of for the periods required, the Contractor shall

(1) source and assign upon the Works Contractor's Personnel (of at least Operation Leader and skilled worker status) from other countries; and/or

(2) recruit candidates in the Country and train them to provide the skill required to properly perform their assignments.

1.21.3 Further Training of Operation Leaders

(1) Unless otherwise specified in the Particular Safety Specification and without limiting or changing the Contractor's obligations under the Contract, the Contractor shall be required to select candidates from his local skilled workforce that he considers are suitable to act as future Operation Leaders.

(2) The Contractor shall ensure that his personnel work closely with and transfer necessary knowledge and skills via OJT to such candidates to develop their management abilities, skill levels and awareness of international safety and quality standards.

(3) To compliment the OJT, the Contractor shall provide classroom-based training courses and assign qualified instructors to develop the ability skills and awareness and also to pass on their knowledge in future to their working colleagues and compatriots.

(4) The Contractor shall develop the syllabus and teaching hours appropriately and submit details to the Engineer for his consent.

1.21.4 Unless otherwise specified in the Particular Safety Specification, the Contractor shall not bring into the Country for use upon the Works any unqualified, unskilled or inexperienced foreign Contractor's Personnel.

NK6/2: Our comments is shown in right column.

The Particular Safety Specification shall specify for example:

(1) Requirements for classrooms and whether these can be of the Contractor's office facilities at the Site.

(2) Requirements for training facilities (for example furniture, equipment, computers, sample tools and working equipment, other teaching aids and the like).

(3) Requirements for teachers.

(4) If classroom lessons are to be full-time or part-time

Please refer to my comments in Chapter 1, 1.21 as I do not agree that such levels of skills training are necessary or contractually correct.

This training suggestion started off as OJT from assigned foreign Operation leaders but with the recent transfer of trainers from the operation training by JICA, I believe that this is now evolving into excessive and expensive requirements.

I would appreciate your answers to my query on this item in chapter 1 before I attempt to amend this clause.

I have no objection to the changes made by JICA below.

NK6/2: The skill training requirement shall be determined by the Contractor depending availability of Operation Leaders in the country. If the Employer specifies requirements regarding training, the Contractor may claims by the reason of the requirements when the Works cannot execute as expected. Therefore, this sentences is deleted.

The Particular Safety Specification shall specify for example:

~~(1) Requirements for classrooms and whether these can be of the Contractor's office facilities at the Site.~~

~~(2) Requirements for training facilities (for example furniture, equipment, computers, sample tools and working equipment, other teaching aids and the like).~~

(3) Requirements for teachers.

~~(4) If classroom lessons are to be full-time or part-time~~

(5) ~~*That candidates shall be paid their full wages and allowances during teaching time.*~~ (JC15)

JC15: This is already stated in JSSS 1.19.3. So, no need to be mentioned in Particular Safety Specification.

Yes correct.

(6) That the Contractor shall design syllabi to compliment the candidates' skill group, their work and position at the Site.

(7) In addition to skill training, syllabi shall include health and safety training to an international level of appreciation with a general introduction to OSHA and other international safety standards and regulations. (JC16)

JC16: There are few personnel who can train as mentioned above. Please review the above referring to the 1.21 revised by JICA.

NK6/2: Recently, safety training is made internationally by training centers and also by internet distance

The Particular Safety Specification shall specify for example:

(1) Requirements for teachers.

(2) That the Contractor shall design syllabi to compliment the candidates' skill group, their work and position at the Site.

(3) In addition to skill training, syllabi shall include health and safety training to an international level of appreciation with a general introduction to OSHA and other international safety standards and regulations.

(4) Requirements for testing of candidates for example that the Contractor shall test candidates upon completion of their course, prepare and issue certificates of attendance and successful completion of each course.

	(5) ~~*That candidates shall be paid their full wages and allowances during teaching time.*~~ (JC15) JC15: This is already stated in JSSS 1.19.3. So, no need to be mentioned in Particular Safety Specification. (6) That the Contractor shall design syllabi to compliment the candidates' skill group, their work and position at the Site. (7) In addition to skill training, syllabi shall include health and safety training to an international level of appreciation with a general introduction to OSHA and other international safety standards and regulations. (JC16) JC15: There are few personnel who can train as mentioned above. Please review the above referring to the 1.21 revised by JICA. (8) Requirements for testing of candidates for example that the Contractor shall test candidates upon completion of their course, prepare and issue certificates of attendance and successful completion of each course. NK: We have an opinion that such details as (1) to (8) are necessary to specify by the Employer. Yes that is the requirement. In addition to stating as above and if there is a requirement for such classroom-based skill training, appropriate pay items shall be included for each of the above in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items for: Assignment of Operation Leaders as teachers: Unit: man-month Quantity: Total estimated man-months Use of Training Facilities: Sum If any Training Facilities are to be handed to the Employer or training aids given to candidates, then these shall be clearly specified in the Particular Safety Specification, items shall be listed with quantities given, otherwise all such Training Facilities shall remain the property of the Contractor and shall be removed on completion. NK: May we know the meaning of "issued to candidates" or describe in other words? e.g. notebook computers, books, training and aids, I have rephrased		training, so the above requirement can be executed by contractors. (8) Requirements for testing of candidates for example that the Contractor shall test candidates upon completion of their course, prepare and issue certificates of attendance and successful completion of each course. NK: We have an opinion that such details as (1) to (8) are necessary to specify by the Employer. Yes, that is the requirement. ~~In addition to stating as above and if there is a requirement for such classroom based skill training, appropriate pay items shall be included in the Bill of Quantities to allow pricing of the required services and facilities under this clause as follows:~~ ~~Assignment of Operation Leaders as teachers:~~ *All of the above needs to be adjusted and coordinated with the final version of JSSS 1.21 as it has now been changed by JICA comment from OJT teaching by Operation Leaders to full skills training and teaching by qualified trainers which I do not agree with. In any event I await the final version of JSSS 1.21 before I can edit or rephrase this.* ~~Unit: man-month Quantity: Total estimated man-months~~ ~~Use of Training Facilities: Sum~~ *The above is transferred to 3. BILL OF QUANTITIES on the last page of this guide.* ~~If any Training Facilities are to be handed to the Employer or training aids given to candidates, then these shall be clearly specified in the Particular Safety Specification, items shall be listed with quantities given, otherwise all such Training Facilities shall remain the property of the Contractor and shall be removed on completion.~~ NK: May we know the meaning of "issued to candidates" or describe in other words? e.g. notebook computers, books, training and aids, I have rephrased NK6/2: Revised as the right column.		
1.22.7 Rescue teams and equipment (JC17)	NK: The requirement for rescue teams and rescue equipment shall be specified. Not in this case this is for Dangerous Work for which the Contractor shall be responsible for this to ensure the safety of his workers.	1.22.7 Rescue teams and equipment (JC17)	NK: The requirement for rescue teams and rescue equipment shall be specified. Not in this case this is for Dangerous Work for which the Contractor shall be responsible for this to ensure the safety of his workers.	1.22.7 Rescue teams and equipment	

	JC17: 1.22.8 was deleted by JICA, so this particular is not needed. Modified 1.24.7 stipulated emergency rescue and training. NK: I recalled the rescue drill in the subway Blue Line construction project as in Thailand shown the photos below: Safety team is under drill to transport an assumed victim from the tunnel to outside.  		JC17: 1.22.8 was deleted by JICA, so this particular is not needed. Modified 1.24.7 stipulated emergency rescue and training. NK: I recalled the rescue drill in the subway Blue Line construction project as in Thailand shown the photos below: Safety team is under drill to transport an assumed victim from the tunnel to outside. *I am confused over the content of JSSS 1.22.7 now as this has been combined with 1.24.7 by JICA.* *I assume that this clause is not now required but safety rescue training by the Contractor for his own personnel engaged on Dangerous Work is required.* *I will edit the above when I have received your advice and have reviewed your final version of chapter 1.* NK: Deleted.		
1.22.12 Hazardous Substances	~~After following Site survey and investigation,~~If it is considered that there is any likelihood of the existence of Hazardous Substances at the Site of the Works or in any existing buildings and structures, ~~or in the Works, then this shall be stated in the Particularly Safety Specification and~~ the Employer's requirements for removal and disposal by the Contractor shall be stated. (JC18) JC18: Is there any possibility of existing of Hazardous Substances in the Works? NK: Existing of asbestos is mentioned for example in 1.22.12. Bangladesh seems there are still asbestos as reported below. Asbestos : Country Profile BANGLADESH http://www.google.co.jp/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=2ahUKEwje-qDjlq3pAhVGZt4KHecYBggQFjAAegQIARAB&url=http%3A%2F%2Fwww.krcard.org%2Fcommon_english%2Ffiledown.php%3Ftid%3Dboard_dataroom2012_3%26ono%3D11%26n%3D1&usg=AOvVaw2eIuXWW8IHRtm_-Fduw4Vy	1.22.12 Hazardous Substances	~~After following Site survey and investigation,~~If it is considered that there is any likelihood of the existence of Hazardous Substances at the Site of the Works or in any existing buildings and structures, ~~or in the Works, then this shall be stated in the Particularly Safety Specification and~~ the Employer's requirements for removal and disposal by the Contractor shall be stated. (JC18) JC18: Is there any possibility of existing of Hazardous Substances in the Works? NK: Existing of asbestos is mentioned for example in 1.22.12. Bangladesh seems there are still asbestos as reported below. Asbestos : Country Profile BANGLADESH http://www.google.co.jp/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=2ahUKEwje-qDjlq3pAhVGZt4KHecYBggQFjAAegQIARAB&url=http%3A%2F%2Fwww.krcard.org%2Fcommon_english%2Ffiledown.php%3Ftid%3Dboard_dataroom2012_3%26ono%3D11%26n%3D1&usg=AOvVaw2eIuXWW8IHRtm_-Fduw4Vy *Yes, there is a possibility of existing Hazardous Substances being encountered on JICA funded works particularly on the many projects which require demolition or alteration of existing buildings and structures.* *Upgrading of water treatment facilities can involve contact with chlorine and other chemicals.* *I do not agree that the following corrected phrase should be deleted:* After Site survey and investigation has been carried out by the Executing Agency, if it is ….." *I suggest that it is essential that the Executing Agency (actually their consultant) should always be aware of the possibility of encountering Hazardous Substances in existing buildings and on existing services and as*	1.22.12 Hazardous Substances	If it is considered that there is any likelihood of the existence of Hazardous Substances at the Site of the Works or in any existing buildings and structures, the Employer's requirements for removal and disposal by the Contractor shall be stated.

			such MUST survey likely buildings during the design stage to check this out. *It is important that the Contractor is given full information as if not discovered during the design stage, the later discovery will have significant and negative effects upon time, cost and safety.* NK6/2: agreed.		
1.24 Accident Response Plan	Although the Contract places obligations upon the Contractor under GC6.7 [Health and Safety], the Particular Safety Specification shall include a listing and description of any particular services and facilities that the Contractor is required to provide at the Site in addition to those already described in the Conditions of Contract. This is particularly relevant where the Site is located at an excessive distance from urban areas and/or where there is a lack of immediate availability of medical facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel and Employer's Personnel and all other persons who are entitled to be on the Site and other places (if any) where the Works are being executed. The circumstances shall be investigated by Executing Agencies and their consultants during the design stage and full requirements shall be clearly described in the Bidding Documents. NK: There are same phrase of "described in the Contract". May it be modified? Please let me consider later, this is still very much an early draft, see also above change. Normally it would be in the Bidding documents so that the bidder can price for it.	1.24 Accident Response Plan	Although the Contract places obligations upon the Contractor under GC6.7 [Health and Safety], the Particular Safety Specification shall include a listing and description of any particular services and facilities that the Contractor is required to provide at the Site in addition to those already described in the Conditions of Contract. This is particularly relevant where the Site is located at an excessive distance from urban areas and/or where there is a lack of immediate availability of medical facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel and Employer's Personnel and all other persons who are entitled to be on the Site. ~~and other places (if any) where the Works are being executed.~~ *Please refer to my earlier comments in Chapter 1, JSSS 1.2.2 (6).* *"Site" can be changed as above; I suggest that the reference to other persons in this instance should remain.* The circumstances shall be investigated by Executing Agencies ~~and their consultants~~ during the design stage and full requirements shall be clearly described in the Bidding Documents. NK: There are same phrase of "described in the Contract". May it be modified? Please let me consider later, this is still very much an early draft, see also above change. Normally it would be in the Bidding documents so that the bidder can price for it. *I think that this should remain as it is. It is important that this is described at Bid Stage so that the Contractor is then aware and can price for this in his Bid.* *The Bidding Document will form a part of the subsequent Contract anyway.* Such additional facilities at the Site could for example include: (1) Enhanced medical staff with qualified doctor(s).	1.24 Accident Response Plan	Although the Contract places obligations upon the Contractor under GC6.7 [Health and Safety], the Particular Safety Specification shall include a listing and description of any particular services and facilities that the Contractor is required to provide at the Site in addition to those already described in the *Conditions of* Contract. This is particularly relevant where the Site is located at an excessive distance from urban areas and/or where there is a lack of immediate availability of medical facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel and Employer's Personnel and all other persons who are entitled to be on the Site. The circumstances shall be investigated by Executing Agencies during the design stage and full requirements shall be clearly described in the Bidding Documents. Such additional facilities at the Site could for example include:

	Such additional facilities at the Site could for example include: (1) Enhanced medical staff with qualified doctor(s). (2) Enhanced first aid and treatment facilities and staff. (3) Enhanced medical equipment, medical supplies, medicines and drugs. (4) Additional treatment and recovery rooms. (5) An equipped ambulance based at the Site with qualified driver and attenders. (6) Where transfer time by road can exceed one (1) hour, emergency air-ambulance evacuation services, shall also be considered in addition to the above. (7) Above available 7 days per week, 24 hours per day or during the normal working hours stated in the Contract Data, etc. The Particular Safety Specification shall state whether the medical, first aid and related services and facilities at the Site are to be available for during the normal working hours stated in the Contract or for any longer times. If any facilities as required under the Contract or additional facilities as required by JSSS are not required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking Over Certificate then this shall be clearly specified in the Particular Safety Specification, such items shall be listed with quantities and fully specified, otherwise all such facilities shall remain the property of the Contractor and shall be removed on or before the issue of the Taking Over Certificate. (JC19) JC19: It is considered not necessary to specify as default the safety facility will be taken over by the Employer.	(2) Enhanced first aid and treatment facilities and staff. (3) Enhanced medical equipment, medical supplies, medicines and drugs. (4) Additional treatment and recovery rooms. (5) An equipped ambulance based at the Site with qualified driver and attenders. (6) Where transfer time by road can exceed one (1) hour, emergency air-ambulance evacuation services, shall also be considered in addition to the above. NK: One hour mentioned above seems short as ODA project sites such as Sondu/Miriu projects is almost one hour car drive to hospital at Kisumu. We propose to mention as follows: Where transfer time by road can exceed required time for major trauma injuries from the Site to trauma centre, … We referred to the following: https://en.wikipedia.org/wiki/Air_medical_services (Japanese only: ドクターヘリ出動基準) https://www.hemnet.jp/mt-img/101112pdf04.pdf (7) Above available 7 days per week, 24 hours per day or during the normal working hours stated in the Contract Data, etc. The Particular Safety Specification shall state whether the medical, first aid and related services and facilities at the Site are to be available for during the normal working hours stated in the Contract or for any longer times. If any facilities as required under the Contract or additional facilities as required by JSSS are not required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking Over Certificate then this shall be clearly specified in the Particular Safety Specification. All such facilities shall be described and fully specified. If any facilities are to be handed to the Employer then any related requirements for replacement, repair or renovation shall be described. (JC19) JC19: It is considered not necessary to specify as default the safety facility will be taken over by the Employer. The sentence after otherwise seems strange because there are some facilities necessary for repair works during DNP. *I believe it is essential that the PSSS shall clearly state if any of the safety facilities are to be handed over to the Employer upon taking over of the Works.*	(1) Enhanced medical staff with qualified doctor(s). (2) Enhanced first aid and treatment facilities and staff. (3) Enhanced medical equipment, medical supplies, medicines and drugs. (4) Additional treatment and recovery rooms. (5) An equipped ambulance based at the Site with qualified driver and attenders. (6) Where transfer time by road can exceed required time for major trauma injuries from the Site to trauma treatment centre, emergency air-ambulance evacuation services, shall also be considered in addition to the above. (7) Above available 7 days per week, 24 hours per day or during the normal working hours stated in the Contract Data, etc. The Particular Safety Specification shall state whether the medical, first aid and related services and facilities at the Site are to be available for during the normal working hours stated in the Contract or for any longer times. If any facilities as required under the Contract or additional facilities as required by JSSS are not required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking Over Certificate then this shall be clearly specified in the Particular Safety Specification. All such facilities shall be described and fully specified. If any facilities are to be handed to the Employer then any related requirements for replacement, repair or renovation shall be described.

	The sentence after otherwise seems strange because there are some facilities necessary for repair works during DNP. The Particular Safety Specification shall also state whether the medical, first aid and related services and facilities at the Site for accidental injuries (or more) shall also be made available and whether free of charge or not to any accompanying family members of the Contractor's Personnel, the Employer's Personnel and the family members of any other persons who are entitled to be on the Site and other places (if any) where the Works are being executed. In addition to stating as above, if there is a requirement for such additional facilities, appropriate pay items shall be included for each of the above in Section IV. Bidding Forms, Bill of Quantities, Bill No. 1: General Items, with unit for provision of facilities shown as "Sum" and unit rate/quantity for provision being shown as "month". Quantity in "months" shall be of the required period for provision which will usually be the Time for Completion and any required time during the Defects Notification Period.		*These are temporary facilities and as such remain as the Contractor's property.* *If they are to be handed over to the Employer, they actually are (or become) permanent facilities which should be designed by the Employer. Drawings should be provided at Bid stage and full specifications provided including specifications for any required renovation.* *This is not stated above as a default but it is a frequently encountered problem when requested for the first time at the time of taking over by an employer.* *Any facilities remaining at taking over, unless specially stated to remain in the PSS shall be removed (or relocated) during the DNP or with alternative minimal facilities provided by the Contractor for his own personnel at his own cost.* The Particular Safety Specification shall also state whether the medical, first aid and related services and facilities at the Site for accidental injuries (or more) shall also be made available and whether free of charge or not to any accompanying family members of the Contractor's Personnel, the Employer's Personnel and the family members of any other persons who are entitled to be on the Site and other places (if any) where the Works are being executed. ~~Separate pay items shall be included in the Bill of Quantities to allow pricing of the required services and facilities under this clause with separate lump sum items given for mobilisation and removal and monthly rate items given for ongoing provision and maintenance.~~ ~~Quantity in months, shall be of the required period for provision which usually will not exceed the Time for Completion.~~ ~~Any services required during the Defects Notification Period or during the completion of outstanding work and remedying defects shall usually be at the Contractor's own cost.~~ *The above is transferred to 3. BILL OF QUANTITIES on the last page of this guide.* NK: Agreed.		The Particular Safety Specification shall also state whether the medical, first aid and related services and facilities at the Site for accidental injuries (or more) shall also be made available and whether free of charge or not to any accompanying family members of the Contractor's Personnel, the Employer's Personnel and the family members of any other persons who are entitled to be on the Site and other places (if any) where the Works are being executed.
1.26 Emergency Response Plan	In locations where there is a risk of flooding, earthquake, volcanic or similar activity, the Contractor is required to take measures under JSSS 1.27 for basic emergency response. If t~~T~~he Employer ~~may~~ require~~s~~ additional measures~~, and if so~~ these shall be stated in the Particular Safety Specification. These may include for example a requirement of the Contractor to establish, train and maintain a specialist	1.26 Emergency Response Plan	In locations where there is a risk of flooding, earthquake, volcanic or similar activity, the Contractor is required to take measures under JSSS 1.27 for basic emergency response. If t~~T~~he Employer ~~may~~ require~~s~~ additional measures~~, and if so~~ these shall be stated in the Particular Safety Specification.	~~1.26 Emergency Response Plan~~	

team at the Site to assist in the event of an emergency and the provision of specialist equipment. (JC20)

JC20: What is supposed by the expression " assist in the event of…."? In case of emergency like earthquake or volcanic activities, the Contractor cannot do a lot of things, but stop working and evacuating.

We are afraid that with this drafting, the Contractor would be required to take "excessive" actions (e.g. firefighting at the time of volcanic activities???). How is the nuance of this drafting???

NK: JICA cannot understand what meaning of "assist" is and to whom the Contractor assists.
I wonder if you are assuming that the Employer may request the Contractor to assist the Employer or community around the Site in emergency.

In such cases, the Particular Safety Specification shall specify whether this is required, details of personnel and equipment to be provided so that the Contractor is made fully aware and is able to assess the extent, risk and cost of the requirements.

An appropriate pay item shall be included for this in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items, with unit for provision of facilities shown as "Sum" and unit rate/quantity for provision being shown as "month".

These may include for example a requirement of the Contractor to establish, train and maintain a specialist team at the Site to assist in the event of an emergency and the provision of specialist equipment. (JC20)

JC20: What is supposed by the expression " assist in the event of…."? In case of emergency like earthquake or volcanic activities, the Contractor cannot do a lot of things, but stop working and evacuating.

We are afraid that with this drafting, the Contractor would be required to take "excessive" actions (e.g. firefighting at the time of volcanic activities???). How is the nuance of this drafting???

NK: JICA cannot understand what meaning of "assist" is and to whom the Contractor assists.
I wonder if you are assuming that the Employer may request the Contractor to assist the Employer or community around the Site in emergency.

In such cases, the Particular Safety Specification shall specify whether this is required, details of personnel and equipment to be provided so that the Contractor is made fully aware and is able to assess the extent, risk and cost of the requirements.

An appropriate pay item shall be included for this in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items, with unit for provision of facilities shown as "Sum" and unit rate/quantity for provision being shown as "month".

The above is transferred to 3. BILL OF QUANTITIES on the last page of this guide.

Please refer to Clause 1.10 of your original Chapter 1 draft and my requests for you to explain your exact requirement. This clause stated:

"The Contractor shall prepare an emergency response plan as a part of the Health and Safety Plan (or the Particular Health and Safety Plans as necessary) ***in order to promptly and appropriately respond to natural disasters, fires, and other emergencies that may occur during construction."***

I still do not understand exactly what is required.

My comment on your document on 16/7/19 stated as follows:

"NK please note:

Natural disasters include typhoons, earthquakes etc. these are GC19 Force Majeure situations for which the contractor is not responsible for making any such "response".

NK what is the actual extent of the Contractor's "response"? What manpower and equipment is to provide? How can this be predicted and estimated?

What about the Employer's and Engineer's own plans and what about the availability of the rescue services etc. in the Country?

These arrangements appear to be excessive.

			Can we please discuss and consider this further to understand the purpose and intention. *We have edited the following to make it readable (not the above paragraph yet) but do not agree fully with the content. "* *I have since explained that the Contractor has no obligation to plan for or to "respond to natural disasters, fires, and other emergencies that may occur during construction."* *Please also refer to my recent comments and queries against JSSS 1.26 which include:* *"JSSS cannot specify what other measures the Contractor is to take after a Force majeure event (which I guess your emergency plan is trying to cover) as these events and any counter measures cannot be predicted.* *In order to move the document forward, I had assumed in July 2019 that response services by the contractor, can only include a call list, training of response teams and perhaps the provision of general assistance from available resources hence the very loose drafting of this clause. I have also explained that need will vary on country to country basis with some countries having no such requirement.* *However, as I am now being questioned on my interpretation of your clearly inadequate draft, and the confusing manner in which this clause is evolving, I will refrain from making further revision of this User Guide clause until after I have received and reviewed your final updated draft of JSSS 1.26.* *In re-drafting 1.26. please can you describe exactly what scope of work you are requiring the Contractor to perform in the event of an earthquake, hurricane, typhoon or volcanic activity, so that I can edit this if necessary.* NK6/2: We have understood the background of the clauses 1.26. I checked our Japanese JSSS. Because we cannot find any particular requirement by the Employer, we delete "Unless otherwise specified in the Particular Safety Specification (PSS)" in 1.26.5 but leave "the Contractor shall prepare an Emergency Response Plan as a part of the Safety Plan." Nk6/2 In this relation, the above PSS for 1.26 is deleted.		
1.29 Project Safety Committee	*(On large Projects with multiple contract packages and contractors)* The Particular Safety Specification shall state if a Project Safety Committee is to be established for the Project and describe any further requirements.	1.29 Project Safety Committee	On large Projects with multiple contract packages, consultants and contractors, the Executing Agency may consider that an overall Project Safety Committee should be established to manage and coordinate all of the various contracts comprised in the Project. If so required, this shall be stated in the Particular Safety Specification together with a description of the requirements. *Suggestion for improved drafting* NK: Agreed.	1.29 Project Safety Committee	On large Projects with multiple contract packages, consultants and contractors, the Executing Agency may consider that an overall Project Safety Committee should be established to manage and coordinate all of the various contracts comprised in the Project. If so required, this shall be stated in the Particular Safety Specification together with a description of the requirements.

1.30 Health and Safety Coordination with Other Contractors, refer also to GC 2.3 [*Employer's Personnel*]	The Particular Safety Specification shall describe the individual scope of Works for any other contractors to be employed by the Employer on the Site and where possible identify them by name. Also list any legally constituted public authorities who may be employed in the execution on or near the Site of any work not included in the Contract, and specify scope, working locations, access and timing as far as possible.
1.36 Health Matters	Although the Contract places obligations upon the Contractor under GC6.7 [*Health and Safety*], the Particular Safety Specification should include a listing and description of any particular services and facilities that the Contractor is required to provide at the Site for health control in addition to those already described in the Contract. The listing should also include furniture and equipment for rest stations, restroom, dining facilities, canteens, sanitary facilities, recreational facilities, shower facilities, changing rooms and the like together with a description of any requirements for use and for example whether facilities can be used by the Employer's Personnel and their families. This is particularly relevant where the Site is situated some distance away from urban areas and/or where there is a lack of immediate availability of suitable medical facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel, to compensate for any lack of available services or facilities or lack of any local health authorities. The circumstances shall be investigated by Executing Agencies and their consultants during the design stage and full requirements shall be clearly described in the Bidding Documents. Consideration as to whether assignment of healthcare staff is required to be full time or part time (JC20) JC20: The sentence is incomplete. In addition to stating as above, if there is a requirement for such additional facilities, appropriate pay items shall be included for each of the above in

1.30 Health and Safety Coordination with Other Contractors, refer also to GC 2.3 [*Employer's Personnel*]	The Particular Safety Specification shall describe the scope of work of any other contractors to be employed by the Employer on the Site and where possible identify them by name. The Particular Safety Specification shall also describe the scope of work of any legally constituted public authorities who may be employed by either the Employer or by the Contractor to execute work on or near the Site and identify them by name. NK6/2: Agreed.
1.36 Health Matters	Although the Contract places obligations upon the Contractor under GC6.7 [*Health and Safety*], the Particular Safety Specification should include a listing and description of any particular services and facilities that the Contractor is required to provide at the Site for health control in addition to those already described in the Contract. The listing should also include furniture and equipment for rest stations, restroom, dining facilities, canteens, sanitary facilities, recreational facilities, shower facilities, changing rooms and the like together with a description of any requirements for use and for example whether facilities can be used by the Employer's Personnel and their families. This is particularly relevant where the Site is situated some distance away from urban areas and/or where there is a lack of immediate availability of suitable medical facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel, to compensate for any lack of available services or facilities or lack of any local health authorities. The circumstances shall be investigated by Executing Agencies and their consultants during the design stage and full requirements shall be clearly described in the Bidding Documents. ~~Consideration as to whether assignment of healthcare staff is required to be full time or part time~~ (JC20) JC20: The sentence is incomplete. *Edited as follows:* The Executing Agency shall consider whether assignment of healthcare staff is required to be full time or part time and this shall be clearly stated in the Particular Safety Specification. ~~In addition to stating as above, if there is a requirement for such additional facilities, appropriate~~

1.30 Health and Safety Coordination with Other Contractors, refer also to GC 2.3 [*Employer's Personnel*]	The Particular Safety Specification shall describe the scope of work of any other contractors to be employed by the Employer on the Site and where possible identify them by name. The Particular Safety Specification shall also describe the scope of work of any legally constituted public authorities who may be employed by either the Employer or by the Contractor to execute work on or near the Site and identify them by name.
1.36 Health Matters	Although the Contract places obligations upon the Contractor under GC6.7 [*Health and Safety*], the Particular Safety Specification should include a listing and description of any particular services and facilities that the Contractor is required to provide at the Site for health control in addition to those already described in the Contract. The listing should also include furniture and equipment for rest stations, restroom, dining facilities, canteens, sanitary facilities, recreational facilities, shower facilities, changing rooms and the like together with a description of any requirements for use and for example whether facilities can be used by the Employer's Personnel and their families. This is particularly relevant where the Site is situated some distance away from urban areas and/or where there is a lack of immediate availability of suitable medical facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel, to compensate for any lack of available services or facilities or lack of any local health authorities. The circumstances shall be investigated by Executing Agencies and their consultants during the design stage and full requirements shall be clearly described in the Bidding Documents. The Executing Agency shall consider whether assignment of healthcare staff is required to be full time or part time and this shall be clearly stated in the Particular Safety Specification.

	Section IV. Bidding Forms, Bill of Quantities, Bill No. 1: General Items, with unit for provision of facilities shown as "Sum" and unit rate/quantity being shown as "month". Quantity in "months" shall be of the required period for provision which will usually be the Time for Completion and any required time during the Defects Notification Period. If any facilities as required under the Contract or additional facilities as required by JSSS are not required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking Over Certificate then this shall be clearly specified in the Particular Safety Specification~~, items shall be listed with quantities and fully specified, otherwise all such facilities shall remain the property of the Contractor and shall be removed on or before the issue of the Taking Over Certificate~~.		~~pay items shall be included for each of the above in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items, with unit for provision of facilities shown as "Sum" and unit rate/quantity being shown as "month"~~. ~~Quantity in "months" shall be of the required period for provision which will usually be the Time for Completion and any required time during the Defects Notification Period.~~ *The above is transferred to 3. BILL OF QUANTITIES on the last page of this guide.* If any facilities as required under the Contract or additional facilities as required by JSSS are not required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking Over Certificate then this shall be clearly specified in the Particular Safety Specification.~~, items shall be listed with quantities and fully specified, otherwise all such facilities shall remain the property of the Contractor and shall be removed on or before the issue of the Taking Over Certificate~~. *For consistency with 1.24 Accident Response Plan, I suggest redrafting of the above deleted clauses as follows:* The Particular Safety Specification shall state whether the services and facilities specified are to be available during the normal working hours stated in the Contract or for any longer times. If any facilities as required under the Contract or additional facilities as required by JSSS are required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking-Over Certificate then this shall be clearly specified in the Particular Safety Specification. All such facilities shall be described and fully specified. If any facilities are to be handed to the Employer, any requirements for replacement, repair or renovation shall be described. The Particular Safety Specification shall also state whether the services and facilities at the Site shall also be made available and whether free of charge or not, to any accompanying family members of the Contractor's Personnel, or to the Employer's Personnel or to the family members of any other persons who are entitled to be on the Site and other places (if any) where the Works are being executed. NK6/2: Agreed.		If any facilities as required under the Contract or additional facilities as required by JSSS are not required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking Over Certificate then this shall be clearly specified in the Particular Safety Specification. The Particular Safety Specification shall state whether the services and facilities specified are to be available during the normal working hours stated in the Contract or for any longer times. If any facilities as required under the Contract or additional facilities as required by JSSS are required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking-Over Certificate then this shall be clearly specified in the Particular Safety Specification. All such facilities shall be described and fully specified. If any facilities are to be handed to the Employer, any requirements for replacement, repair or renovation shall be described. The Particular Safety Specification shall also state whether the services and facilities at the Site shall also be made available and whether free of charge or not, to any accompanying family members of the Contractor's Personnel, or to the Employer's Personnel or to the family members of any other persons who are entitled to be on the Site and other places (if any) where the Works are being executed.
1.37 Design and Management of Temporary Works	As a standard requirement, the Particular Safety Specification shall require Bidders to comply with BS5975 (latest issue) or approved equivalent for the design and management of Temporary Works.	1.37 Design and Management of Temporary Works	As a standard requirement, the Particular Safety Specification shall require Bidders to comply with	1.37 Design and Management of Temporary Works	As a standard requirement, the Particular Safety Specification shall require Bidders to comply with BS5975 (latest issue) or approved equivalent for the design and management of Temporary Works.

	If Bidders are NOT required to comply with BS5975, the Particular Safety Specification shall state this and also state that Bidders are to comply in any event with the specified requirements of JSSS 1.37 and submit full details in the Safety Plan.
~~1.38 User Training~~	~~The Particular Safety Specification shall state whether User Training of Employer's Personnel is required so that the Works or any part or Section thereof can be used, operated and maintained in a safe manner.~~ ~~If it is required, the Particular Safety Specification shall modify or add to the requirements of JSSS 1.38 [*User Training*] and state the precise requirements including details of required training, numbers of candidates and duration of training.~~ ~~This shall be determined by the scope and nature of the Works and the number of users, management staff, operators, maintenance staff who will be engaged upon the Works.~~ ~~The Particular Safety Specification shall state whether lessons will be full time or part time.~~ ~~The Contractor shall design syllabi to compliment the training courses and in addition to user training, syllabi shall include health and safety training to an international level of appreciation with a general introduction to OSHA and other international safety standards and regulations. The Contractor shall test candidates upon completion of their course, prepare and issue certificates of attendance and successful completion of each course.~~ ~~In addition to stating as above and if there is a requirement for such user training, appropriate pay items shall be included for each of the above in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items for:~~ ~~Assignment of teachers for user training~~ ~~Unit: man month Quantity: Total estimated man months~~ ~~Provision and use of Training Facilities: Sum~~ ~~If any Training Facilities are to be handed to the Employer or issued to candidates, then this shall be clearly specified in the Particular Safety Specification, items shall be listed with quantities and fully specified, otherwise all such Training Facilities shall remain the property of the Contractor and shall be removed on completion.~~

	BS5975 (latest issue) or approved equivalent for the design and management of Temporary Works. If Bidders are NOT required to comply with BS5975, the Particular Safety Specification shall state this and also state that Bidders are to comply in any event with the specified requirements of JSSS 1.37 and submit full details in the Safety Plan.
~~1.38 User Training~~	*The draft clause has been deleted with the comment/query:* This must be relevant as guidance to the Employer. But not as Particular specification??? ~~The Particular Safety Specification shall state whether User Training of Employer's Personnel is required so that the Works or any part or Section thereof can be used, operated and maintained in a safe manner.~~ *I don't understand the comment; this User Guide is for the purpose of guiding the Employer with his drafting of the Bid documents.* *The originally drafted content, is the guidance.* *Permanent equipment (Plant) is a major component of most JICA projects and the purpose of JSSS 1.38 was to make sure that the Bidding documents include a consistent and clear requirement for high level operator safety training for such Plant (commonly imported) that has been provided under the contract by foreign trainers. It is basically to ensure that all operators of this Plant are properly trained by the Contractor to ensure they can use it safely.* *Often this requirement is not specified properly and full training for safe use is not effectively provided.* ~~If it is required, the Particular Safety Specification shall modify or add to the requirements of JSSS 1.38 [*User Training*] and state the precise requirements including details of required training, numbers of candidates and duration of training.~~ ~~This shall be determined by the scope and nature of the Works and the number of users, management staff, operators, maintenance staff who will be engaged upon the Works.~~ ~~The Particular Safety Specification shall state whether lessons will be full time or part time.~~ ~~The Contractor shall design syllabi to compliment the training courses and in addition to user training, syllabi shall include health and safety training to an international level of appreciation with a general introduction to OSHA and other international safety standards and regulations. The Contractor shall test candidates upon completion of their course, prepare and issue certificates of attendance and successful completion of each course.~~

	If Bidders are NOT required to comply with BS5975, the Particular Safety Specification shall state this and also state that Bidders are to comply in any event with the specified requirements of JSSS 1.37 and submit full details in the Safety Plan.

			~~In addition to stating as above and if there is a requirement for such user training, appropriate pay items shall be included for each of the above in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items for:~~ ~~Assignment of teachers for user training~~ ~~Unit: man-month Quantity: Total estimated man-months~~ ~~Provision and use of Training Facilities: Sum~~ ~~If any Training Facilities are to be handed to the Employer or issued to candidates, then this shall be clearly specified in the Particular Safety Specification, items shall be listed with quantities and fully specified, otherwise all such Training Facilities shall remain the property of the Contractor and shall be removed on completion.~~ NK6/2: We take a note MD's suggestion and agreed to delete the above.		
1.39 Unexploded Ordnance	If there is a possibility that any UXO may exist at the Site, then this shall be surveyed and investigated by the Employer before Bids are requested and the result of this investigation shall be clearly stated and full information including survey and investigation results shall be provided by the Employer in the Particular Safety Specification. Clearance of UXO shall be undertaken by the Employer as a condition precedent to commencement under GCC 8.1 [*Commencement of Works*], at the cost of the Employer and carried out by specialist government organisations, forces or contractor(s) that are appropriately and specifically qualified, skilled and experienced in the safe and environmentally acceptable removal and disposal of UXO, engaged directly by the Employer. Completion of clearance shall be evidenced through the issue by the Employer's specialist remover of a certificate of UXO clearance from the Site area. A copy of this certificate shall be provided to the Engineer and the Contractor. No work shall commence at the Site until the receipt of a by the Engineer and Contractor of a copy of this certificate. Should the Contractor encounter any UXO, after a clearance certificate has been issued in accordance with the above, he shall immediately stop all affected work at Site, clear the area of all Contractor's Personnel, Employer's Personnel and all other persons and notify the Engineer and relevant authorities. Unless otherwise agreed between Employer and Contractor, the Employer shall then make further arrangements for removal and disposal, then obtain and issue a further clearance certificate. Work shall resume in the affected areas after the Contractor has received a copy if the further clearance certificate	1.39 Unexploded Ordnance	If there is a possibility that any UXO may exist at the Site, then this shall be surveyed and investigated by the Executing Agency before Bids are requested and the result of this investigation shall be clearly stated and full information including survey and investigation results shall be provided by the Executing Agency in the Particular Safety Specification. Clearance of UXO shall be undertaken by the Executing Agency as a condition precedent to commencement under GCC 8.1 [*Commencement of Works*], by the agency's own arrangements and at their own cost. Clearance shall be carried out by specialist government organisations, forces or contractor(s) that are appropriately and specifically qualified, skilled and experienced in the safe and environmentally acceptable removal and disposal of UXO, engaged directly by the Executing Agency. Completion of clearance shall be evidenced through the issue by the Executing Agency's specialist remover of a certificate of UXO clearance from the Site area. A copy of this certificate shall be provided to the Engineer and the Contractor. No work shall commence in relevant areas of the Site until the receipt by the Engineer and Contractor of a copy of this certificate. Should the Contractor encounter any UXO, after a clearance certificate has been issued in accordance with the above, he shall immediately stop all affected work at Site, clear the affected area of all Contractor's Personnel, Employer's Personnel and all other persons and notify the Engineer and relevant authorities. Unless otherwise agreed between Employer and Contractor, the Executing Agency shall then make	1.39 Unexploded Ordnance	If there is a possibility that any UXO may exist at the Site, then this shall be surveyed and investigated by the Executing Agency before Bids are requested and the result of this investigation shall be clearly stated and full information including survey and investigation results shall be provided by the Executing Agency in the Particular Safety Specification. Clearance of UXO shall be undertaken by the Executing Agency as a condition precedent to commencement under GCC 8.1 [*Commencement of Works*], by the agency's own arrangements and at their own cost. Clearance shall be carried out by specialist government organisations, forces or contractor(s) that are appropriately and specifically qualified, skilled and experienced in the safe and environmentally acceptable removal and disposal of UXO, engaged directly by the Executing Agency. Completion of clearance shall be evidenced through the issue by the Executing Agency's specialist remover of a certificate of UXO clearance from the Site area. A copy of this certificate shall be provided to the Engineer and the Contractor. No work shall commence in relevant areas of the Site until the receipt by the Engineer and Contractor of a copy of this certificate. Should the Contractor encounter any UXO, after a clearance certificate has been issued in accordance with the above, he shall immediately stop all affected work at Site, clear the affected area of all Contractor's Personnel, Employer's Personnel and all other persons and notify the Engineer and relevant authorities. Unless otherwise agreed between Employer and Contractor, the Executing Agency shall then make further arrangements for removal and disposal, then obtain and issue a further clearance certificate. Work

	together with any further instructions from the Engineer. (JC21) JC21: This must be relevant as guidance to the Employer. But not as Particular specification??? NK: I wonder how to specify this as guidance.		further arrangements for removal and disposal, then obtain and issue a further clearance certificate. Work shall resume in the affected areas after the Contractor has received a copy if the further clearance certificate together with any further instructions from the Engineer. (JC21) JC21: This must be relevant as guidance to the Employer. But not as Particular specification??? NK: I wonder how to specify this as guidance. *I don't understand the comment; this User Guide is for the purpose of guiding the Executing Agency with their drafting of the Bid documents.* *The originally drafted content is the guidance.* NK6/2: We agree to MD's reply and leave this as they are.		shall resume in the affected areas after the Contractor has received a copy if the further clearance certificate together with any further instructions from the Engineer.
		JSSS 2.1.1 Other Hazardous Substances	If there is a known possibility that any other Hazardous Substances may exist at the Site this shall be stated and full details provided of all likely hazards in the Particular Safety Specification. NK6/2: Agreed.	JSSS 2.1.1 Other Hazardous Substances	If there is a known possibility that any other Hazardous Substances may exist at the Site this shall be stated and full details provided of all likely hazards in the Particular Safety Specification.
		JSSS 2.1.2 Hazardous Substances - Asbestos	If there is a known possibility that asbestos in any of its various forms may exist at the Site (for example in existing buildings, structures or installations or which has been disposed of or buried at the Site then this shall be surveyed and investigated by the Executing Agency using a specialist qualified consultant/contractor before Bids are requested. The result of this investigation shall be clearly stated and full information including survey and investigation results shall be provided in the Particular Safety Specification. If possible, removal and disposal of this asbestos shall be undertaken by the Executing Agency before commencement of the Works by the agency's own arrangements and at their own cost. Removal and disposal shall be carried out by a specialist contractor that is appropriately and specifically qualified, skilled and experienced in the safe and environmentally acceptable removal and disposal of asbestos, engaged directly by the Executing Agency. Completion of removal and disposal shall be evidenced through the issue by the specialist contractor of a suitable certificate. A copy of this certificate shall be provided to the Engineer and the Contractor. No work shall commence at the Site until the receipt of a by the Engineer and Contractor of a copy of this certificate. Should the Contractor encounter any asbestos, after a clearance certificate has been issued in accordance with the above, he shall immediately stop all affected work at Site, clear the affected area of all Contractor's	JSSS 2.1.2 Hazardous Substances - Asbestos	If there is a known possibility that asbestos in any of its various forms may exist at the Site (for example in existing buildings, structures or installations or which has been disposed of or buried at the Site then this shall be surveyed and investigated by the Executing Agency using a specialist qualified consultant/contractor before Bids are requested. The result of this investigation shall be clearly stated and full information including survey and investigation results shall be provided in the Particular Safety Specification. If possible, removal and disposal of this asbestos shall be undertaken by the Executing Agency before commencement of the Works by the agency's own arrangements and at their own cost. Removal and disposal shall be carried out by a specialist contractor that is appropriately and specifically qualified, skilled and experienced in the safe and environmentally acceptable removal and disposal of asbestos, engaged directly by the Executing Agency. Completion of removal and disposal shall be evidenced through the issue by the specialist contractor of a suitable certificate. A copy of this certificate shall be provided to the Engineer and the Contractor. No work shall commence at the Site until the receipt of a by the Engineer and Contractor of a copy of this certificate. Should the Contractor encounter any asbestos, after a clearance certificate has been issued in accordance with the above, he shall immediately stop all affected work at Site, clear the affected area of all Contractor's Personnel, Employer's Personnel and all other

2.2 Risk Control Around the Site Site Perimeter Fencing:	The Particular Safety Specification shall describe the required Site Perimeter fencing showing the extent, dimensions, constructional details and specification, whether temporary or permanent. This shall also be shown on the Drawings. Requirements for permanent or temporary fencing or barriers within the Site shall be described and shown for example around areas where Dangerous Work is being carried out. Gates, barriers and other measures at Site entrances shall be described together with any arrangements for communications, lighting and power supply. Requirements for security at the Site entrance and also around the Site shall be described and whether this is to be provided by the Contractor or the Employer.
2.1 Work Environment Other Dangerous Work	If the scope of Works includes any other Dangerous Work, as defined in JSSS Annex 1.1 [*Definitions and Abbreviations*], this shall be stated and full details provided of all likely hazards in the Particular Safety Specification. For any work to be perform in Operational Areas, the time(s) and conditions of operation shall be described together with any restrictions on the Contractor's working methods, times and arrangements shall be further described in detail. The respective responsibilities for insurance, health and safety management, security, health and welfare facilities, etc., between the Employer and

	Personnel, Employer's Personnel and all other persons and notify the Engineer and relevant authorities. Unless otherwise agreed between Employer and Contractor, the Engineer shall issue an appropriate Variation under GC 13 [*Variations and Adjustments*]. If removal is to be undertaken by the Contractor, this shall be stated in the Particular Safety Specification with full details and drawings of the extent and requirements for removal and disposal. Separate pay items shall be included in the Bill of Quantities to allow pricing of the removal and disposal with separate lump sum items given for mobilisation and removal of resources and approximate quantities given for the area of asbestos. NK6/2: Agreed.
2.2 Risk Control Around the Site Site Perimeter Fencing:	The Particular Safety Specification shall describe the required Site Perimeter fencing showing the extent, dimensions, constructional details and specification, whether temporary or permanent. This shall also be shown on the Drawings. Requirements for permanent or temporary fencing or barriers within the Site shall be described and shown for example around areas where Dangerous Work is being carried out. Gates, barriers and other measures at Site entrances shall be described together with any arrangements for communications, lighting and power supply. Requirements for security at the Site entrance and also around the Site shall be described and whether this is to be provided by the Contractor or the Employer.
JSSS 2.2.6 Community Relations	If the Contractor is required, to assist the Employer with maintaining community relations, for example conducting traffic safety and awareness activities for the local community, this shall be described in the Particular Safety Specification and full details of requirements shall be stated. NK6/2: Agreed.
JSSS 2.3.1 Dangerous Work	If there is a known possibility that any Dangerous Work will be necessary this shall be stated and full details provided of all likely hazards in the Particular Safety Specification. If the scope of Works includes any work to be performed in Operational Areas, then a list of such works and a full description of the nature and conditions of operations shall be included in the Particular Safety Specification. Any requirements and restrictions on the Contractor's working methods and times and any special access, safety or other arrangements shall be further described in detail.

	persons and notify the Engineer and relevant authorities. Unless otherwise agreed between Employer and Contractor, the Engineer shall issue an appropriate Variation under GC 13 [*Variations and Adjustments*]. If removal is to be undertaken by the Contractor, this shall be stated in the Particular Safety Specification with full details and drawings of the extent and requirements for removal and disposal. Separate pay items shall be included in the Bill of Quantities to allow pricing of the removal and disposal with separate lump sum items given for mobilisation and removal of resources and approximate quantities given for the area of asbestos.
2.2 Risk Control Around the Site Site Perimeter Fencing:	The Particular Safety Specification shall describe the required Site Perimeter fencing showing the extent, dimensions, constructional details and specification, whether temporary or permanent. This shall also be shown on the Drawings. Requirements for permanent or temporary fencing or barriers within the Site shall be described and shown for example around areas where Dangerous Work is being carried out. Gates, barriers and other measures at Site entrances shall be described together with any arrangements for communications, lighting and power supply. Requirements for security at the Site entrance and also around the Site shall be described and whether this is to be provided by the Contractor or the Employer.
JSSS 2.2.6 Community Relations	If the Contractor is required, to assist the Employer with maintaining community relations, for example conducting traffic safety and awareness activities for the local community, this shall be described in the Particular Safety Specification and full details of requirements shall be stated.
JSSS 2.3.1 Dangerous Work	If there is a known possibility that any Dangerous Work will be necessary this shall be stated and full details provided of all likely hazards in the Particular Safety Specification. If the scope of Works includes any work to be performed in Operational Areas, then a list of such works and a full description of the nature and conditions of operations shall be included in the Particular Safety Specification. Any requirements and restrictions on the Contractor's working methods and times and any special access, safety or other arrangements shall be further described in detail.

	Contractor(s) shall be clearly described so that there is no doubt over what each party is to perform or provide. A copy of the Employer's working procedures, including their health and safety procedures shall be provided to Bidders for their study during the Bidding period.		The respective responsibilities for insurance, health and safety management, security, health and welfare facilities, etc., between the Employer and Contractor(s) shall be clearly described so that there is no doubt over what each party is to perform or provide. A copy of the Employer's working procedures, including their health and safety procedures shall be provided to Bidders for their study during the Bidding period. NK6/2: Agreed.		The respective responsibilities for insurance, health and safety management, security, health and welfare facilities, etc., between the Employer and Contractor(s) shall be clearly described so that there is no doubt over what each party is to perform or provide. A copy of the Employer's working procedures, including their health and safety procedures shall be provided to Bidders for their study during the Bidding period.
2.8 Fire Prevention	Although the Contract places obligations upon the Contractor for care of the Works, the Particular Safety Specification should include a listing and description of any particular fire-fighting and rescue services and facilities that the Contractor is required to provide at the Site. (JC22) JC22: This request seems excessive to provide fire engine, fire brigade for 24 hours stan-by. This is particularly relevant where the Site is situated some distance away from urban areas and/or where there is a lack of immediate availability of suitable fire-fighting and rescue facilities, or where such facilities do not exist or are lacking in capability or	2.8 Fire Prevention	Although the Contract places obligations upon the Contractor for care of the Works, the Particular Safety Specification should include a listing and description of any particular fire-fighting and rescue services and facilities that the Contractor is required to provide at the Site. (JC22) JC22: This request seems excessive to provide fire engine, fire brigade for 24 hours stan-by. *This is entirely my suggestion, please amend as you consider necessary.* *My thinking is influenced by the fact that whilst FIDIC confirms that the Contractor is responsible for the care of the Works (GC 17), and safety (GC 4.8 and 6.7) it does not specify example requirements for fire control such as are given for health and safety under GC 6.7* *GC 6.7 for example mentions "local health authorities" but does not mention "local fire-fighting authorities.* *I suppose that FIDIC like many other standard contracts, assumes that a public fire service will be available however this is definitely not the case on many JICA projects.* *Often the site (for example on hydro projects) is so far away from urban areas that any public fire service is of no value. Also and quite frequently such services are ill equipped for use on major JICA style projects.* *Much injury, death and damage will therefore occur because sufficient fire-fighting facilities are not provided by the Contractor at the site unless particularly specified. Reliance is placed upon insurance but this is compensation and not a safety feature.* *Many sites will require the provision of full fire-fighting facilities hence my suggested common basis draft in JSSS* This is particularly relevant where the Site is situated some distance away from urban areas and/or where there is a lack of immediate availability of suitable fire-fighting and rescue facilities, or where such	2.8 Fire Prevention	Although the Contract places obligations upon the Contractor for care of the Works, the Particular Safety Specification should include a listing and description of any particular fire-fighting and rescue services and facilities that the Contractor is required to provide at the Site. This is particularly relevant where the Site is situated some distance away from urban areas and/or where there is a lack of immediate availability of suitable fire-fighting and rescue facilities, or where such

	standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel, to compensate for any lack of available services or facilities or lack of any local health authorities. The circumstances shall be investigated by Executing Agencies and their consultants during the design stage and full requirements shall be clearly specified in the Particular Safety Specification. Such additional facilities at the Site could for example include: (1) An equipped fire engine based at the Site with qualified driver and crew selected from the workers at the Site. (2) Sufficient temporary water and power supply to maintain emergency use. (3) Additional PPE for the fire-fighting and rescue team. (4) Enhanced fire protection equipment and facilities around the Site. (5) Above available 7 days per week, 24 hours per day or during the normal working hours stated in the Contract Data, etc. Where applicable, details shall be provided in the Particular Safety Specification for the selection, training and equipping of emergency fire-fighting teams selected from existing Contractor's Personnel at the Site, who in addition to their normal work, shall be called upon immediately in the event of any fire, to rescue any person(s) who may become trapped or injured or otherwise affected or incapacitated by fire and to provide suitable, specialist and appropriate first aid and medical treatment. Without limiting the Contractor's obligations, the Particular Safety Specification shall describe the particular scope of fire prevention services that are to be provided by the Contractor for the Works. An appropriate pay item shall be included for this in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items, with unit for provision of facilities shown as "Sum" and unit rate/quantity for provision being shown as "month". If any facilities as required under the Contract or additional facilities as required by JSSS are not required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking Over Certificate then this shall be clearly specified in the Particular Safety Specification, items shall be listed with quantities and fully specified, otherwise all such facilities shall remain the property of the Contractor and shall be		facilities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel, to compensate for any lack of available services or facilities or lack of any local health authorities. The circumstances shall be investigated by Executing Agencies ~~and their consultants~~ during the design stage and full requirements shall be clearly specified in the Particular Safety Specification. Such additional facilities at the Site could for example include: (1) An equipped fire engine based at the Site with qualified driver and crew selected from the workers at the Site. (2) Sufficient temporary water and power supply to maintain emergency use. (3) Additional PPE for the fire-fighting and rescue team. (4) Enhanced fire protection equipment and facilities around the Site. (5) Above available 7 days per week, 24 hours per day or during the normal working hours stated in the Contract Data, etc. Where applicable, details shall be provided in the Particular Safety Specification for the selection, training and equipping of emergency fire-fighting teams selected from existing Contractor's Personnel at the Site, who in addition to their normal work, shall be called upon immediately in the event of any fire, to rescue any person(s) who may become trapped or injured or otherwise affected or incapacitated by fire and to provide suitable, specialist and appropriate first aid and medical treatment. Without limiting the Contractor's obligations, the Particular Safety Specification shall describe the particular scope of fire prevention services that are to be provided by the Contractor for the Works. If any facilities as required under the Contract or additional facilities as required by JSSS are required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking-Over Certificate then this shall be clearly specified in the Particular Safety Specification. All such facilities shall be described and fully specified. If any facilities are to be handed to the Employer, any requirements for replacement, repair or renovation shall be described. ~~Separate pay items shall be included in the Bill of Quantities to allow pricing of the required services~~		facilities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel, to compensate for any lack of available services or facilities or lack of any local health authorities. The circumstances shall be investigated by Executing Agencies during the design stage and full requirements shall be clearly specified in the Particular Safety Specification. Such additional facilities at the Site could for example include: (1) An equipped fire engine based at the Site with qualified driver and crew selected from the workers at the Site. (2) Sufficient temporary water and power supply to maintain emergency use. (3) Additional PPE for the fire-fighting and rescue team. (4) Enhanced fire protection equipment and facilities around the Site. (5) Above available 7 days per week, 24 hours per day or during the normal working hours stated in the Contract Data, etc. Where applicable, details shall be provided in the Particular Safety Specification for the selection, training and equipping of emergency fire-fighting teams selected from existing Contractor's Personnel at the Site, who in addition to their normal work, shall be called upon immediately in the event of any fire, to rescue any person(s) who may become trapped or injured or otherwise affected or incapacitated by fire and to provide suitable, specialist and appropriate first aid and medical treatment. Without limiting the Contractor's obligations, the Particular Safety Specification shall describe the particular scope of fire prevention services that are to be provided by the Contractor for the Works. If any facilities as required under the Contract or additional facilities as required by JSSS are required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking-Over Certificate then this shall be clearly specified in the Particular Safety Specification. All such facilities shall be described and fully specified. If any facilities are to be handed to the Employer, any requirements for replacement, repair or renovation shall be described.

	removed on or before the issue of the Taking Over Certificate.		~~and facilities under this clause with separate lump sum items given for mobilisation and removal and monthly rate items given for ongoing provision and maintenance.~~ ~~The quantity in months, shall be of the required period for provision which usually will not exceed the Time for Completion.~~ ~~Any services required during the Defects Notification Period or during the completion of outstanding work and remedying defects shall usually be at the Contractor's own cost.~~ *The above is transferred to 3. BILL OF QUANTITIES on the last page of this guide.* NK6/2: Agreed.		
3. Existing Underground, Concealed and Overhead Services	The Particular Safety Specification shall describe the required extent of any work required in connection with any existing Underground, Concealed or Overhead Services, with details and specification and this shall also be shown on the Drawings. If any such services are the property of the Employer, this shall be stated clearly and the route, size, purpose of each shall be described and shown. If services are to remain live and functional throughout the Time for Completion of the Works or if they are to be removed and if so by whom shall also be described. If any of these services are the property of a legally constituted public authority or a third party, this shall be stated clearly and the owner, route, size, purpose of each shall be described and shown. If it is to remain live and functional throughout the Time for Completion of the Works or if it is to be removed and if so by whom, (i.e. the authority or third party or the Contractor) shall also be described. The Particular Safety Specification shall also describe or include the procedures and requirements (including responsibility for insurance and safety procedures) of the authority or third party if the Contractor is to carry out the work.	3. Existing Underground, Concealed and Overhead Services	The Particular Safety Specification shall describe the required extent of any work required in connection with any existing Underground, Concealed or Overhead Services, with details and specification and this shall also be shown on the Drawings. If any such services are the property of the Employer, this shall be stated clearly and the route, size, purpose of each shall be described and shown. If these services are to remain live and functional throughout the Time for Completion of the Works or if they are to be removed and if so by whom shall also be described. If any of these services are the property of a legally constituted public authority or a third party, this shall be stated clearly and the owner, route, size, purpose of each shall be described and shown. A copy of the regulations of the legally constituted public authority or third party shall be provided in the Particular Safety Specification or made available with the Bidding documents If services are to remain live and functional throughout the Time for Completion of the Works or if they are to be removed and if so by whom, (i.e. the authority or third party or the Contractor) shall also be described. The Particular Safety Specification shall also describe or include the procedures and requirements (including responsibility for insurance and safety procedures) of the authority or third party if the Contractor is to carry out the work. NK6/2: Agreed.	3. Existing Underground, Concealed and Overhead Services	The Particular Safety Specification shall describe the required extent of any work required in connection with any existing Underground, Concealed or Overhead Services, with details and specification and this shall also be shown on the Drawings. If any such services are the property of the Employer, this shall be stated clearly and the route, size, purpose of each shall be described and shown. If these services are to remain live and functional throughout the Time for Completion of the Works or if they are to be removed and if so by whom shall also be described. If any of these services are the property of a legally constituted public authority or a third party, this shall be stated clearly and the owner, route, size, purpose of each shall be described and shown. A copy of the regulations of the legally constituted public authority or third party shall be provided in the Particular Safety Specification or made available with the Bidding documents If services are to remain live and functional throughout the Time for Completion of the Works or if they are to be removed and if so by whom, (i.e. the authority or third party or the Contractor) shall also be described. The Particular Safety Specification shall also describe or include the procedures and requirements (including responsibility for insurance and safety procedures) of the authority or third party if the Contractor is to carry out the work.
		JSSS 4.7 Temporary Fuelling Facilities	If fuel storage and dispensing arrangements are existing at the Site and are available for the Contractor's temporary use upon the Works then this shall be stated in the Particular Safety Specification and the requirements for use shall be described.	JSSS 4.7	If fuel storage and dispensing arrangements are existing at the Site and are available for the Contractor's temporary use upon the Works then this

			Otherwise, the Contractor shall design and construct temporary fuel storage and dispensing facilities at the Site for the use of Contractor's Equipment. If there are any restrictions upon the provision and use of such facilities, then these shall be described in the Particular Safety Specification. NK6/2: Agreed.	Temporary Fuelling Facilities	shall be stated in the Particular Safety Specification and the requirements for use shall be described. Otherwise, the Contractor shall design and construct temporary fuel storage and dispensing facilities at the Site for the use of Contractor's Equipment. If there are any restrictions upon the provision and use of such facilities, then these shall be described in the Particular Safety Specification.
		JSSS 6.1.1 Design and Provision of Temporary Works Generally	The following (formerly a part of 1.37) is inserted here following JICA comment in chapter 1 as follows: JC70: Understand. But, could you transfer 1.37.8 to User Guide for guidance for small project (including grant aid projects)? NK5/6: Will modify as commented. In accordance with JSSS 1.37 [*Design and Management of Temporary Works*], the Contractor is generally required to comply with the requirements of BS5975: Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework or an equivalent alternative standard. On exceptionally small projects or projects which do not demand the provision of complex temporary supporting or load bearing falsework and the like, then, subject to submitting justification with particular reasons acceptable to JICA, the following alternative requirements may apply and if so, the following shall be included in the Particular Safety Specification: *"Where the Contractor is not required to comply with BS5975 or an equivalent alternative, the Contractor shall demonstrate by description in the Safety Plan that he has effective arrangements in place for controlling risks arising from the design, selection of materials, components and equipment, use, management, dismantling and removal of Temporary Works including for example, by ensuring the following:* *(1) Appointment of appropriately qualified and experienced staff.* *(2) Preparation of adequate Temporary Works designs.* *(3) Independent internal or external checking of the Temporary Works Design.* *(4) Preparation of a Temporary Works register and records* *(5) Pre-erection inspection of all Temporary Works, including materials, components and equipment.* *(6) Control and supervision of the Temporary Works erection, safe use, maintenance and*	JSSS 6.1.1 Design and Provision of Temporary Works Generally	In accordance with JSSS 1.37 [Design and Management of Temporary Works], the Contractor is generally required to comply with the requirements of BS5975: Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework or an equivalent alternative standard. On exceptionally small projects or projects which do not demand the provision of complex temporary supporting or load bearing falsework and the like, then, subject to submitting justification with particular reasons acceptable to JICA, the following alternative requirements may apply and if so, the following shall be included in the Particular Safety Specification: *"Where the Contractor is not required to comply with BS5975 or an equivalent alternative, the Contractor shall demonstrate by description in the Safety Plan that he has effective arrangements in place for controlling risks arising from the design, selection of materials, components and equipment, use, management, dismantling and removal of Temporary Works including for example, by ensuring the following:* *(1) Appointment of appropriately qualified and experienced staff.* *(2) Preparation of adequate Temporary Works designs.* *(3) Independent internal or external checking of the Temporary Works Design.* *(4) Preparation of a Temporary Works register and records* *(5) Pre-erection inspection of all Temporary Works, including materials, components and equipment.*

			dismantling of the Temporary Works, including procedures to: *(a) Check that the Temporary Works have been erected in accordance with the design and issue by the HSO of a suitable sign showing it as complete and safe to use; and* *(b) Confirm when the Permanent Works have attained adequate strength to allow dismantling of the Temporary Works and issue by the HSO of a suitable sign showing that it is ready for dismantling.* *In accordance with JSSS 1.18 [Proper Placement of Contractor's Personnel], the Contractor shall ensure that the design, erection, maintenance, dismantling and removal of Temporary Works, are all carried out by competent and experienced persons and in a controlled and closely supervised manner.* NK6/2: Agreed.		*(6) Control and supervision of the Temporary Works erection, safe use, maintenance and dismantling of the Temporary Works, including procedures to:* *(a) Check that the Temporary Works have been erected in accordance with the design and issue by the HSO of a suitable sign showing it as complete and safe to use; and* *(b) Confirm when the Permanent Works have attained adequate strength to allow dismantling of the Temporary Works and issue by the HSO of a suitable sign showing that it is ready for dismantling.* *In accordance with JSSS 1.18 [Proper Placement of Contractor's Personnel], the Contractor shall ensure that the design, erection, maintenance, dismantling and removal of Temporary Works, are all carried out by competent and experienced persons and in a controlled and closely supervised manner."*
		JSSS 6.1.3 Monitoring Impact of Works on Other Properties	The Contractor is required under this clause of JSSS, to monitor the Temporary Works to demonstrate that they are performing safely, to the designed limits and for the intended purpose. The Contractor is further required under the same clause of JSSS *"to monitor any vibration, settlement and other potentially damaging effects arising out of the execution of the Works to ascertain if these are causing any adverse effect to ground, buildings, structures and other properties, paved areas, roads, footpaths, fences, railways, waterways, drainage, utilities or any other property on the Site or outside the Site (collectively referred to in this Section as "other properties") to ensure that no damage or weakening is caused to such other properties."* If there is a risk that the execution of the Works may cause any damage to any "other properties" (as referred to in JSSS 6.1.3) and if the Executing Agency considers that particular minimum requirements for monitoring equipment, locations and methods are helpful or necessary, then these shall be stated in the Particular Safety Specification and the requirements shall be described. The methods may include for example the inclusion of monitoring criteria to assist the Contractor in establishing his own procedures for monitoring to avoid any damage to other properties. If these particular minimum requirements are included, it is important also to state in the relevant clause in the Particular Safety Specification that the requirements are for assistance only and that they shall not in any way affect the Contractor's obligation to execute the Works without causing any damage to other properties.	JSSS 6.1.3 Monitoring Impact of Works on Other Properties	The Contractor is required under this clause of JSSS, to monitor the Temporary Works to demonstrate that they are performing safely, to the designed limits and for the intended purpose. The Contractor is further required under the same clause of JSSS *"to monitor any vibration, settlement and other potentially damaging effects arising out of the execution of the Works to ascertain if these are causing any adverse effect to ground, buildings, structures and other properties, paved areas, roads, footpaths, fences, railways, waterways, drainage, utilities or any other property on the Site or outside the Site (collectively referred to in this Section as "other properties") to ensure that no damage or weakening is caused to such other properties."* If there is a risk that the execution of the Works may cause any damage to any "other properties" (as referred to in JSSS 6.1.3) and if the Executing Agency considers that particular minimum requirements for monitoring equipment, locations and methods are helpful or necessary, then these shall be stated in the Particular Safety Specification and the requirements shall be described. The methods may include for example the inclusion of monitoring criteria to assist the Contractor in establishing his own procedures for monitoring to avoid any damage to other properties. If these particular minimum requirements are included, it is important also to state in the relevant clause in the Particular Safety Specification that the requirements are for assistance only and that they shall not in any way affect the Contractor's obligation

			NK6/2: Agreed.	
		JSSS 6.2 Earthwork Support	For monitoring requirements, refer to the above reference in this table to JSSS 6.1.3 [*Monitoring Impact of Works on Other Properties*].	
		JSSS 6.3 Cofferdams	For monitoring requirements, refer to the above reference in this table to JSSS 6.1.3 [*Monitoring Impact of Works on Other Properties*].	
		JSSS 7.2 Manual or Machine Excavation	In accordance with JSSS 7.2, the Contractor shall be responsible for choosing manual or machine excavation, selecting types of Contractor's Equipment, types of Temporary Works, Earthwork Support, spoil removal, storage and handling, controlling ground and surface water, forming embankments and cuttings and the like, in conformity with GC 4.10. If there are any known and specific requirements or restrictions to be placed upon the Contractor for methods of excavation, types of equipment, Temporary Works Earthwork Support, spoil removal, storage and handling, controlling ground and surface water, forming embankments and cuttings and the like. Then this shall be stated in the Particular Safety Specification and the requirements shall be described.	
		JSSS 7.5.3 Excavation Works	For monitoring requirements, refer to the above reference in this table to JSSS 6.1.3 [*Monitoring Impact of Works on Other Properties*].	
		JSSS 7.6 Excavation by Blasting	If the scope of Works includes Blasting Works for tunnelling which is presently not included in the scope of JSSS, full requirements shall be specified in the Particular Safety Specification. If Blasting Works are allowable or are not allowable then this shall be stated in the Particular Safety Specification and any requirements and restrictions shall be described. If Blasting Works are allowable, then the Particular Safety Specification shall state if electric detonators can be used and the requirements shall be described. For monitoring requirements, refer to the above reference in this table to JSSS 6.1.3 [*Monitoring Impact of Works on Other Properties*].	

	to execute the Works without causing any damage to other properties.
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GC 6.6 Facilities for Staff and Labour	The Particular Safety Specification shall describe any necessary accommodation and welfare facilities that the Contractor is to provide for the Contractor's Personnel and whether such facilities or further facilities are also to be provided for the Employer's Personnel and others. The Particular Safety Specification shall describe the required scope, design, constructional details and specification, whether temporary or permanent and this shall also be shown on the Drawings. If such facilities are required, the Particular Safety Specification shall describe in detail: (1) Responsibility and scope of maintenance, repair and cleaning of such facilities as necessary to maintain them in a clean, habitable, hygienic and safe condition, including garbage removal and disposal, rodent and insect control and the like. (2) Responsibility for and scope of potable water supply, water and power supply, waste water and sewage drainage and treatment. (3) Whether such facilities are required to be provided during the Defects Notification Period

JSSS 8.1.1 Foundation Piling	For monitoring requirements, refer to the above reference in this table to JSSS 6.1.3 [*Monitoring Impact of Works on Other Properties*].
JSSS 10.4.2 Diving Workboats	If the scope of Works includes Diving Works, and if there are any requirements and restrictions then these shall be described in the Particular Safety Specification. If there is a decompression chamber or medical support facilities existing at or near to the diving site and is available for the use of the Contractor then this shall be stated and the type, specification and capacity shall be described together with any requirements and restrictions for use. If a separate rescue tender is required to be provided and moored alongside the workboat for assisting with recovery of Divers who are in difficulty or have drifted away from position then this shall be stated and full requirements shall be described. If there any special requirements for communications with the Dive Team, these shall also be described. NK6/2: Agreed.
GC 6.6 Facilities for Contractor's and Employer's Personnel	The Particular Safety Specification shall describe any necessary accommodation and welfare facilities that the Contractor is to provide for the Contractor's Personnel and whether such facilities or further facilities are also to be provided for the Employer's Personnel and others. If any land area is available at the Site for such facilities this shall be stated and shown and any requirements and restrictions shall be described. The Particular Safety Specification shall describe the required scope, design, constructional details and specification, whether temporary or permanent and this shall also be shown on the Drawings. If such facilities are required, the Particular Safety Specification shall describe in detail: (1) Responsibility and scope of maintenance, repair and cleaning of such facilities as necessary to maintain them in a clean, habitable, hygienic and safe condition, including garbage removal and disposal, rodent and insect control and the like. (2) Responsibility for and scope of potable water supply, water and power supply, waste water and sewage drainage and treatment. (3) Whether such facilities are required to be provided during the Defects Notification Period

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	(4) Whether such facilities are to be removed by the Contractor or are to be handed over to the Employer on issue of the Taking Over Certificate and if so in what condition. The extent of provision by the Contractor shall take due account of the nature and location of the Site and the condition of access thereto, with a higher range and standard of facilities being provided in remote locations to promote good health, hygiene, comfort, welfare and safety of all users and occupants.	(4) Whether such facilities are to be removed by the Contractor or are to be handed over to the Employer on issue of the Taking-Over Certificate and if so in what condition. The extent of provision by the Contractor shall take due account of the nature and location of the Site and the condition of access thereto, with a higher range and standard of facilities being provided in remote locations to promote good health, hygiene, comfort, welfare and safety of all users and occupants. NK6/2: Agreed.	(e) Whether such facilities are required to be provided during the Defects Notification Period (f) Whether such facilities are to be removed by the Contractor or are to be handed over to the Employer on issue of the Taking-Over Certificate and if so in what condition. The extent of provision by the Contractor shall take due account of the nature and location of the Site and the condition of access thereto, with a higher range and standard of facilities being provided in remote locations to promote good health, hygiene, comfort, welfare and safety of all users and occupants.
Other Items of Chapter 1 to review and include other Chapters of JSSS to review and incorporate		

Checklist still under consideration.

3. BILL OF QUANTITIE

3.1 Incorporation of JSSS Requirements

(1) The Bills of Quantities to be prepared by the Executing Agency for the purposes of the Bidding Documents, Section IV. Bidding Forms shall include separate pay items to cover the main component parts of JSSS.

(2) The Executing Agency shall prepare a Bill of Quantities in accordance with the JICA Standard Bidding Document in order:

(a) to provide the facility for the Contractor to include the cost of JSSS compliance in his Bid; and

(b) to provide a basis for the preparation of Statements as part of the Contractor's application for payment under GC 14 [*Contract Price and Payment*].

(c) The Project Safety Specification (including JSSS), and

(3) Appropriate pay items shall be included in Bill No. 1 - General Items, to cover the following general components of the Project Safety Specification, such as:

(a) Assignment of HSO with supporting staff and provision of safety management activities (JSSS 1.13)

(b) Skill Training (JSSS 1.21)

(c) Accident Response Facilities (JSSS 1.24)

(d) Emergency Response Plan (JSSS 1.26)

(e) Health Facilities (JSSS 1.36)

(f) Design and Management of Temporary Works (JSSS 1.37)

(g) Fire Prevention (JSSS 2.8)

(4) The Pay items for the above shall be separated into lump sum and monthly payment items in accordance with the following table:

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(f) Design and Management of Temporary Works (JSSS 1.37)

(g) Fire Prevention (JSSS 2.8)

(4) The Pay items for the above shall be separated into lump sum and monthly payment items in accordance with the following table:

Ref	Description	Establishment and removal of facilities (sum)	Provision of Services (month)
(a)	Assignment of HSO with supporting staff and provision of safety management activities		✔
(b)	~~Skill Training~~ *NK please note that originally this was intended to be OJT provided by skilled and experienced foreign personnel who were also to be engaged actively upon the works. The costs would therefore have been minimal. However, the level of training has now been increased by JICA through the introduction of skilled trainers from JSSS 1.21 [Skill Training] significantly increasing the costs and also perhaps (it is not yet clear) requiring skill training for other as yet undefined workers. I do not agree with (nor fully understand) the intention and await your further instruction and redrafting of relevant clauses.* *This will have an effect upon the price of these requirements.* NK6/2: As mentioned in 1.21 above, the skill training is the Contractor's obligation, therefore the Employer will not need to specify cost and also facilities to be taken in BQ.	~~✔~~	~~✔~~
(c)	Accident Response Facilities	✔	✔
(d)	Emergency Response Plan *NK: I await confirmation of your requirements* NK6/2: As mentioned above 1.26.5 above, not required to specify (d).	?	?
(e)	Health Facilities	✔	✔
(f)	Design and Management of Temporary Works	✔	✔
(g)	Fire Prevention	✔	✔

Note: The above quantity (expressed in months) shall be of the required period for provision which usually will not exceed the Time for Completion. Any services required during the Defects Notification Period to oversee completion of outstanding work and remedying defects shall usually be at the Contractor's own cost.

(5) Appropriate pay items shall be included in other Bills of Quantities to with relevant quantities, unit rates and sums for other parts of JSSS according to the particular scope of the Works for example

Ref	Description	Establishment and removal of facilities (sum)	Provision of Services (month)
(a)	Assignment of HSO with supporting staff and provision of safety management activities		✔
(b)	Accident Response Facilities	✔	✔
(c)	Health Facilities	✔	✔
(d)	Design and Management of Temporary Works	✔	✔
(e)	Fire Prevention	✔	✔

Note: The above quantity (expressed in months) shall be of the required period for provision which usually will not exceed the Time for Completion. Any services required during the Defects Notification Period to oversee completion of outstanding work and remedying defects shall usually be at the Contractor's own cost.

	removal of known hazardous substances, Blasting Work and Diving Works. *Note to NK: this section is a preliminary draft which will require further coordination after JSSS and the foregoing Guide sections 1 and 2 have been completed.* NK6/2: Revised and agreed MD's proposal..	(5) Appropriate pay items shall be included in other Bills of Quantities to with relevant quantities, unit rates and sums for other parts of JSSS according to the particular scope of the Works for example removal of known hazardous substances, Blasting Work and Diving Works. *Note to NK: this section is a preliminary draft which will require further coordination after JSSS and the foregoing Guide sections 1 and 2 have been completed.*

JICA Standard Safety Specification Preparation Study
User Guide / Guide for Use of Executing Agencies (issue 2)

2020.6.5 Issue2

JSSS in English R1 for Issue 2 (2020/05/12) JC: JICA comments (4/22), NK: NK Actions (5/12)	JSSS in English Issue 2（2020/05/26） JC: JICA comments (4/22), NK: NK Actions (5/12), *Notes: MD's revision and note*, NK:6/2 NK comments and revisions	JSSS in English Issue 2 Clean Copy（2020/6/5 by NK based on 5/26）
	***Notes to NK**: (underlined by NK)* *The statement that the User Guide does not form a part of the Contract has been omitted in Chapter1 by JICA.* *I have provided a note there for NK information, which I repeat here* *I felt that the omitted note was important and intended to limit risk for JICA.* *"The deletion is shaded in blue so I must not comment.* *The biggest user of JSSS is actually the Contractor, and if it is published at the same time as the User Guide on the same JICA website the contractor will refer to it and this could create future problems.* *Future claims from contractors can be predicted on this for example that the Bid documents have not been prepared properly according to the User Guide or that the full information (for example required by User Guide clause 1.3.3) has been not been provided or has been withheld. Whether such claims are insupportable under the contract or not, they must still be defended and this takes time and money usually which JICA pay.* *JSSS 1.3.4 was intended to very simply prevent this but it has been deleted and I have been asked not to comment, so what can I do?* *After further consideration on this subject and as advised in my last comment of Annex 1, I also suggest that it is better to rename the "User Guide", for example as the "Guide for Use of Executing Agencies", it is more correct and may reduce the risk of claim even though it will not solve this problem fully."* *I have therefore re-titled this document as "Guide for Use of Executing Agencies" for the above reasons* *I have also confirmed in this document, that it does not form a part of any contract.* NK6/2: We considers MD's suggestion to rename is proper, so we propose to rename this document as "Guide for Use of Executing Agencies".	
USER GUIDE **1.1 General** 1.1.1 Purpose 1.1.2 Objective of JSSS 1.1.3 Effectiveness 1.1.4 Content **1.2 Application to Grant Aid and other Projects** 1.2.1 General **1.3 Incorporation of JSSS into Bids and Contract** 1.3.1 General 1.3.2 Safety Specification and Technical Specification 1.3.3 Drafting of Particular Safety Specification 1.3.4 Composition and Priority of Specifications 1.3.5 Ongoing Projects 1.3.6 JICA Standard Bidding Documents **1.4 The Particular Safety Specification** 1.4.1 General	**GUIDE FOR USE OF EXECUTING AGENCIES** **1 GENERAL** 1.1 Purpose 1.2 Objective of JSSS 1.3 Effectiveness 1.4 Content 1.5 Application to Grant Aid and Other Projects 1.6 Incorporation of JSSS into Bids and Contracts 1.7 Structure of Specification ~~and Technical Specification~~ 1.8 Drafting of Particular Safety Specification 1.9 Use on Ongoing Projects 1.10 JICA Standard Bidding Documents **2 PARTICULAR SAFETY SPECIFICATION** 2.1 Drafting Generally 2.2 Particular Requirements **3 BILL OF QUATITIES** 3.1 Incorporation of JSSS Requirement	**GUIDE FOR USE OF EXECUTING AGENCIES** **1 GENERAL** 1.1 Purpose 1.2 Objective of JSSS 1.3 Effectiveness 1.4 Content 1.5 Application to Grant Aid and Other Projects 1.6 Incorporation of JSSS into Bids and Contracts 1.7 Structure of Specification 1.8 Drafting of Particular Safety Specification 1.9 Use on Ongoing Projects 1.10 JICA Standard Bidding Documents **2 PARTICULAR SAFETY SPECIFICATION** 2.1 Drafting Generally 2.2 Particular Requirements **3 BILL OF QUATITIES** 3.1 Incorporation of JSSS Requirement

コメントの追加 [伊藤1]: Thanks for the suggestion. The new name exactly reflects our intention.

コメントの追加 [SN2]: Considering the contents in each subsection, I suggest the section title as "1. Introduction", subsection 1.1 as "General".

1.4.2 JSSS Items to be Considered for the Particular Safety Specification		
JICA STANDARD SAFETY SPECIFICATION (JSSS) **USER GUIDE (JC1)**	**JICA STANDARD SAFETY SPECIFICATION (JSSS)** **GUIDE FOR USE OF EXECUTING AGENCIES**	**JICA STANDARD SAFETY SPECIFICATION (JSSS)** **GUIDE FOR USE OF EXECUTING AGENCIES**
JC1: We understood this us first draft as MD mentioned.		NK6/2: We considers MD's suggestion to rename is proper, so we propose to rename this document as "Guide for Use of Executing Agencies".
1.1. General	**1. GENERAL**	**1. GENERAL**
	NK: Note on numbering. *Please note that in this guide, there are cross references to other clauses within the guide and cross references also to JSSS clause numbers. I had thought that as a similar numbering system is used in both documents, there may be duplication and referencing errors, however there is no great level of cross reference and as this has always been made to "JSSS 1.22" or "GC 34", I think that there is no need for different numbering.* NK6/2: Agreed to change numbering..	
1.1.1. Purpose (1) This User Guide is designed for the information and assistance of Executing Agencies and (where applicable) their consultants for use in the preparation of Bidding and Contract Documents and for the evaluation, award and implementation of Contracts, for Projects where such agencies have agreed with JICA to adopt JSSS. (2) Definitions and abbreviations used in this User Guide are the same as used in JSSS. (3) If the user has questions regarding the use of JSSS, the appropriate JICA's official should be consulted. (4) This User Guide is an information document only which will not form a part of any Contract for the execution of any construction works.	**1.1 Purpose** (1) This guide is prepared and issued for the information and assistance of Executing Agencies and (where applicable) their consultants for use in the preparation of Bidding and Contract Documents for Projects where such agencies have agreed with JICA that JSSS shall be adopted. (2) Definitions and abbreviations used in this guide shall be the same as in JSSS. (3) Reference to "Executing Agencies" in this guide shall be deemed to include their consultants which have been appointed to provide design stage services in accordance with JICA requirements. (4) If the user has questions regarding the use of JSSS, the appropriate JICA's official should be consulted. (5) This guide is for information only and will not form a part of any Contract for the execution of any Works.	**1.1 Purpose** (1) This guide is prepared and issued for the information and assistance of Executing Agencies and (where applicable) their consultants for use in the preparation of Bidding and Contract Documents for Projects where such agencies have agreed with JICA that JSSS shall be adopted. (2) Definitions and abbreviations used in this guide shall be the same as in JSSS. (3) Reference to "Executing Agencies" in this guide shall be deemed to include their consultants which have been appointed to provide design stage services in accordance with JICA requirements. (4) If the user has questions regarding the use of JSSS, the appropriate JICA's official should be consulted. (5) This guide is for information only and will not form a part of any Contract for the execution of any Works.
1.1.2. Objective of JSSS (1) As noted in JSSS, JICA requires that all parties engaged upon their ODA Projects shall endeavour to establish and maintain a culture ensuring human security and the maintenance of human rights as an essential and fundamental feature. (2) The common objective shall be the achievement of a zero-accident rate on the Works, adopting the slogan of "Safety First" by creating a working environment where health and safety are of the highest priority. (3) To assist with achieving this objective, JICA has published the JICA Standard Safety Specification (referred to as "JSSS"), which JICA wishes to be adopted for future selected Projects by the Executing Agencies for such Projects.	**1.2 Objective of JSSS** (1) As noted in JSSS, JICA requires that all parties engaged upon their ODA Projects shall endeavour to establish and maintain a culture ensuring human security and the maintenance of human rights as an essential and fundamental feature. (2) The common objective shall be the achievement of a zero-accident rate on the Works, adopting the slogan of "Safety First" by creating a working environment where health and safety are of the highest priority. (3) To assist with achieving this objective, JICA has published the JICA Standard Safety Specification (referred to as "JSSS"), which JICA wishes to be adopted for future selected Projects by the Executing Agencies for such Projects.	**1.2 Objective of JSSS** (1) As noted in JSSS, JICA requires that all parties engaged upon their ODA Projects shall endeavour to establish and maintain a culture ensuring human security and the maintenance of human rights as an essential and fundamental feature. (2) The common objective shall be the achievement of a zero-accident rate on the Works, adopting the slogan of "Safety First" by creating a working environment where health and safety are of the highest priority. (3) To assist with achieving this objective, JICA has published the JICA Standard Safety Specification (referred to as "JSSS"), which JICA wishes to be adopted for the~~future selected~~ Projects to be financed by JICA~~by the Executing Agencies for such Projects~~.
1.1.3. Effectiveness JSSS has been published on-line by JICA~~–~~ *Unless otherwise specifically agreed by the parties to the Loan Agreement for particular Projects, JSSS and it* shall become effective and used by Executing Agencies ~~for particular Projects *on the date that the Loan Agreement for that Project is executed and* where the parties to such Loan Agreement have formally and specifically agreed to adopt JSSS~~ as the technical basis for Health and Safety management on that Project. (JC2) JC2: We modified so that JSSS would be enforced to the Project unless agreed by JICA	**1.3 Effectiveness** JSSS has been published on-line by JICA~~–~~ *Unless otherwise specifically agreed by the parties to the Loan Agreement for particular Projects, JSSS and it* shall become effective and used by Executing Agencies ~~for particular Projects *on the date that the Loan Agreement for that Project is executed and* where the parties to such Loan Agreement have formally and specifically agreed to adopt JSSS~~ as the technical basis for Health and Safety management on that Project. (JC2)	**1.3 Effectiveness** JSSS has been published on-line by JICA. Where the parties to a Loan Agreement have specifically agreed to adopt JSSS for a Project ~~Unless otherwise specifically agreed by the parties to the Loan Agreement for particular Projects,~~ JSSS shall become effective and used by Executing Agencies as the technical basis for Health and Safety management on that Project.

コメントの追加 [SN4]: That?

コメントの追加 [伊藤5]: 少し考えなおしました。
L/A でリファーされるような調達ガイドラインのようなものも、審査時 M/D でその適用を念押しの意味も含めて合意しているので、当初原案のような表現、または 1.6 の当初の MD 氏の原案になるような表現（Where the parties to a Loan Agreement have specifically agreed to adopt JSSS for a new Project）にしておきましょう。

and executing agency not to apply JSSS at the time of L/A.
NK: I have no comment. Please review this modification.

1.1.4. Content

(1) JSSS specifies the minimum health and safety requirements to be complied with by the Contractor throughout the execution of the Works.

(2) JSSS contains general requirements for health and safety management with procedural requirements for the preparation, submission, review and response processes for Method Statements and Safety Plans for the safe execution of the Works, involvement of Employer, Engineer and other contractors, together with requirements for general administration and management of health and safety.

1.2. Application to Grant Aid and other Projects

1.2.1. General

(1) JSSS has been drafted to apply to JICA Loan Projects which are usually based upon the Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer, Multilateral Development Bank Harmonised Edition, June 2010.

(2) JSSS ~~shall~~ may (JC2) (apply equally to other JICA assisted Projects that have been awarded under different forms of contract ~~including those under Contractor design contracts and contracts under the JICA Grant Aid programme.~~ (JC2) When so used, suitable modification shall be required to the definitions and text of JSSS and the Bidding Documents for those Projects to ensure compatibility and consistency with the relevant contract requirements for the Project, reflecting the same intentions, standards and procedures for improving health and safety.

JC2: Let's stay with "may" at this moment, not to trigger a civil war with the Grant aid people inside JICA....
NK: I think it is better to delete "including those under Contractor design contracts and contracts under the JICA Grant Aid programme." to avoid unnecessary conflict in JICA.

JC2: We modified so that JSSS would be enforced to the Project unless agreed by JICA and executing agency not to apply JSSS at the time of L/A.
NK: I have no comment. Please review this modification.

In principle, I suggest that JSSS can only be applied when it offers a higher standard of safety than any local laws and regulations (which do often exist) and then only if specifically agreed between Government, Executing Agency and JICA before Loan Agreement is finalised.

I feel that the incorporation of JSSS must be clearly agreed and specifically agreed that it can and will be used not assumed as a default according to your proposed amendment. Otherwise it may be established during implementation that local laws and regulations do exist and must then take legal priority over JSSS in full or in part, thereby complicating the effectivity.

In some cases, it may be necessary for loan recipient governments to a enact a further local law to ensure that where local laws or regulations are found to exist, JSSS will prevail and apply on the particular Project as an agreed term of the Loan.

Otherwise I can only rely on JICA advice of their intentions for implementation and effectiveness and therefore have no further comment.

NK6/2: No comment.

1.4 Content

(1) JSSS specifies the minimum health and safety requirements to be complied with by the Contractor throughout the execution of the Works.

(2) JSSS contains general rules for health and safety management with procedural requirements for the preparation, submission, review and response processes for Method Statements and Safety Plans to encourage the safe execution of the Works. JSSS further describes the involvement of Employer, Engineer and other contractors, and provides requirements for general administration and management of health and safety.

1.5 Application to Grant Aid and other Projects

(1) JSSS has been drafted to apply to JICA Loan Projects ~~which are usually~~ based upon the Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer, Multilateral Development Bank Harmonised Edition, June 2010.

Suggest deletion gives better wording

(2) JSSS ~~shall~~ may (JC2) (apply equally to other JICA assisted Projects that have been awarded under different forms of contract ~~including those under Contractor design contracts and contracts under the JICA Grant Aid programme~~. (JC2)When so used, suitable modification shall be made ~~required~~ to the definitions and text of JSSS and the Bidding Documents for those Projects to ensure compatibility and consistency with the relevant contract requirements for the Project, reflecting the same intentions, standards and procedures for improving health and safety.

JC2: Let's stay with "may" at this moment, not to trigger a civil war with the Grant aid people inside JICA....
NK: I think it is better to delete "including those under Contractor design contracts and contracts under the JICA Grant Aid programme." to avoid unnecessary conflict in JICA.

1.4 Content

(1) JSSS specifies the minimum health and safety requirements to be complied with by the Contractor throughout the execution of the Works.

(2) Also, JSSS contains general rules for health and safety management with procedural requirements for the preparation, submission, review and response processes for Method Statements and Safety Plans to encourage the safe execution of the Works. JSSS further describes the involvement of Employer, Engineer and other contractors, and provides requirements for general administration and management of health and safety.

1.5 ~~Range of~~ Applicabilit~~ytion to Grant Aid and other Projects~~

(1) JSSS has been developed~~drafted~~ to apply to ~~JICA~~ Japanese ODA Loan Projects based upon the Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer, Multilateral Development Bank Harmonised Edition, June 2010.

(2) JSSS may apply equally to other JICA assisted Projects that have been awarded under different forms of contract. ~~including those under Contractor design contracts and contracts under the JICA Grant Aid programme.~~ When so used, suitable modification shall be made to the definitions and text of JSSS and the Bidding Documents for those Projects to ensure compatibility and consistency with the relevant contract requirements for the Project, reflecting the same intentions, standards and procedures for improving health and safety.

(NK6/2: NK requests JICA to review the above deletion is correct or not.)

コメントの追加 [伊藤3]: It depends on how often.
India, maybe yes. Philippines, one of the "senior" ASEAN countries, has very comprehensive OHS standards but their comprehensiveness depends on areas.
On the other hand, Bangladesh, for example, one of the most important recipient countries for JICA, has OSH law, but it doesn't cover the construction industry. Myanmar, Cambodia, Lao PDR may be still behind Bangladesh.
No matter how comprehensive the local laws and regulations are, JSSS will be, I believe, useful for wide range of our partners agencies taking account of its contents on the managerial process to ensure OHS at the construction site.
Having said that, I will follow your suggestion that a specific agreement is needed, since JICA always start gradually when introducing new things.

コメントの追加 [岡本6]: Refer to attached paper.

コメントの追加 [SN7]: This is just for readability. To be added?

コメントの追加 [伊藤8]: After reconsideration, I think it is not necessary to mention "Grant" here. Even under loan funded projects, suitable modification is needed when a contract is issued under "Plant" contract form.
Is "Applicability" appropriate? Please modify if you have any better wording.

1.3. Incorporation of JSSS into Bids and Contracts

1.3.1. General

Unless otherwise specifically agreed by the parties to the Loan Agreement for particular Projects, ~~Where the parties to a Loan Agreement have specifically agreed to adopt JSSS for a new Project~~, the Bidding Documents shall clearly state that ~~this and~~ Bids will be requested on the basis that JSSS is adopted~~this basis~~. (JC3)

NK: SBD, Section II. Bid Data Sheet can be neither modified nor added new items, so we will delete the above (…state this with suitable addition to Section II. Bid Data Sheet and…). We consider the above sentence needs to be modified.

0. I have modified as above however, where in the Instructions to Bidders is this now to be stated? There should be no change to the Bidding Documents unless prescribed in the SBD.

1. I still think that it is necessary to update the SBD in future.

JC3: Modified as above.

1.3.2. Safety Specification and Technical Specification

(1) JSSS shall be included as a part of the Specification for the Works as illustrated in the following Figure [*Incorporation of JSSS in Bid and Contract Documents*]. ~~JSSS shall be included as a part of t~~The Specification for the Works ~~, which~~ shall be subdivided into two parts namely: (JC4)

(a) The Project Safety Specification (including JSSS), and

(b) other parts of the ~~The Technical~~ Specification which shall comprise the specification for the general and technical aspects of the Works, excluding requirements for health and safety. (JC4)

JC4: Modified as above.

Yes, I agree with the possible exclusion of Grant aid projects in this way.

However, please note that some of the major ODA projects funded by JICA and at high risk of accident (including for example Jakarta and other MRT projects) are executed on the FIDIC Yellow Book Conditions of Contract for Contractor design.

I think that JSSS could be reasonable easy to adapt for use with FIDIC Yellow book.

It would be a missed opportunity if these major inner-city infra. projects are not to be brought within the coverage of JSSS and there is no real reason why they should or could not be covered.

I suggest that JICA may wish to retain the wording "that have been awarded under different forms of contract including those under Contractor design contracts" and maybe also leave this as "shall" and not "may".

Suggest change improves the wording.

NK6/2: JICA is planning to prepare document like JSSS for Yellow Book. We leave as above.

NK6/2: NK requests JICA to review the above NK proposal of deletion is correct or not.

1.6 Incorporation of JSSS into Bids and Contracts

Unless otherwise specifically agreed by the parties to the Loan Agreement for particular Projects, ~~Where the parties to a Loan Agreement have specifically agreed to adopt JSSS for a new Project~~, the Bidding Documents shall clearly state that ~~this and~~ Bids will be requested on the basis that JSSS is adopted~~this basis~~. (JC3)

NK: SBD, Section II. Bid Data Sheet can be neither modified nor added new items, so we will delete the above (…state this with suitable addition to Section II. Bid Data Sheet and…). We consider the above sentence needs to be modified.

I have modified as above however, where in the Instructions to Bidders is this now to be stated? There should be no change to the Bidding Documents unless prescribed in the SBD.

I still think that it is necessary to update the SBD in future.

JC3: Modified as above.

See comment against 1.1.3 above, otherwise no further comment.

NK6/2: No comment.

1.7 Structure of Specification ~~and Technical Specification~~

If the creation of and reference to Technical Specification is not to be adopted, then the heading requires change also.

(1) JSSS shall be included as a part of the Specification for the Works as illustrated in the following Figure 1.1 [*Incorporation of JSSS into Bid and Contract Documents*]. ~~JSSS shall be included as a part of t~~The Specification for the Works ~~, which~~ shall be subdivided into two parts namely: (JC4)

(a) The Project Safety Specification (including JSSS); and

(b) other parts of the ~~The Technical~~ Specification which shall comprise the specification for the general and technical aspects of the Works, excluding requirements for health and safety. (JC4)

1.6 Incorporation of JSSS into Bids and Contracts

Where the parties to a Loan Agreement have specifically agreed to adopt JSSS for a Project ~~Unless otherwise specifically agreed by the parties to the Loan Agreement for particular Projects~~, the Bidding Documents shall clearly state that Bids will be requested on the basis that JSSS is adopted.

1.XX Sound Working Environment

Safe construction sites are created from sound working environment. JICA emphasises the importance of the Executing Agency assisting in the pursuit of a zero-accident rate on the Works, for example by creating a safe working environment for the Works, by including for example: sufficient time for Bidding, reasonable Time(s) for Completion; reasonable, continuous and unobstructed access to the Site, ~~reasonably detailed available and relevant~~ data on sub-surface and hydrological conditions at the Site made available in the Bidding Documents, ~~as required by GC 4.10~~, and sufficient area(s) for the Site (including, working and storage areas), all wherever possible. ~~Requirements shall be clearly described in the Bidding Documents.~~

【修文案】

Safe construction sites are created from sound working environment. JICA emphasise the importance of the Executing Agency assisting in the pursuit of a zero-accident rate on the Works, for example by creating a safe working environment for the Works, by including for example: sufficient time for Bidding, reasonable Time(s) for Completion; reasonable, continuous and unobstructed access to the Site, reasonably detailed data on sub-surface and hydrological conditions at the Site made available in the Bidding Documents, and sufficient area(s) for the Site (including, working and storage areas), all wherever possible.

JICA also believes that sound working environment is enhanced by reasonable contract management by each Party to the Contract together with the Engineer. While the primary responsibility to maintain health and safety in the construction site lies with the Contractor, the Employer and Engineer are expected to be proactive for the Works to be executed under the slogan of "SAFETY FIRST" (refer to JSSS 1.1.1). A clear instruction

コメントの追加 [伊藤9]: Moved from 1.8 (1). Please rename the title if you have a more suitable one in your mind.

コメントの追加 [K10]: Repeating of "for example" seems not elegant

コメントの追加 [伊藤11]: This is an advice to the Employer from general point of view, and no need to tie with GC4.10.

It is pity to see that bidding documents sometimes contain only insufficiently surveyed site data. And, it would be contractually correct (in accordance to GC4.10) to make available to the Contractor all the available data which is poor, while the same would be helpless to the Contractor or for the safety.

コメントの追加 [JICA12]: 以下の修文案に差し替えをお願いします

書式を変更: 英語 (米国)

(2) The Project Safety Specification shall consist of two (2) parts namely:

(a) Part 1: JICA Standard Safety Specification (JSSS):

Comprising JSSS as issued at the base date of the Contract

(b) Part 2: Particular Safety Specification:

Comprising a schedule containing the particular additions and modifications to JSSS, necessary to create a precise and relevant specification of the health and safety requirements for the Project. ~~required amendments to the various requirements of as necessary to create a clear and precise safety specification for the Works.~~ (JC5)

(3) ~~The "Technical Specification" shall comprise the specification for the general and technical aspects of the Works, excluding requirements for health and safety.~~ (JC5)

JC5: Modified as above because this is the same expression with the definition of PSS.

The word "addition" is important.

JC4: Modified as above.

Please note that the introduction of "Technical Specification" created two distinctly separate parts to the "Specification", namely the Particular Safety Specification and the Technical Specification.

The change to "Project Safety Specification" and "other parts of the Specification" is no longer two "parts" it implies that there are more than two "parts" and is therefore less clear.

It may also somehow complicate the priority of documents in Figure 1.1:

As written was clear:

(Last) 2. The Project Safety Specification shall have priority over the Technical Specification in respect of health and safety matters.

As revised is less clear as the "the Specification" already includes the Project Safety Specification of which it (and JSS) is already a part and the PSS cannot have priority over itself:

(Revised) 2. The Project Safety Specification shall have priority over the other parts of the Specification in respect of health and safety matters.

NK6/2: It seems there is contradiction in (b) above. The Project Safety Specification (PSS) cannot have priority over the other parts of the Specification (OPS) because OPS excluding H&S requirements cannot compare with PSS.

NK6/2: NK requests JICA to review (b) again.

(2) The Project Safety Specification shall consist of two parts namely:

(a) Part 1: JICA Standard Safety Specification (JSSS):

Comprising JSSS as issued at the base date of the Contract

(b) Part 2: Particular Safety Specification:

Comprising a schedule containing the particular additions and modifications to JSSS, necessary to create a precise and relevant specification of the health and safety requirements for the Project. ~~required amendments to the various requirements of as necessary to create a clear and precise safety specification for the Works.~~ (JC5)

(3) ~~The "Technical Specification" shall comprise the specification for the general and technical aspects of the Works, excluding requirements for health and safety.~~ (JC5)

JC5: Modified as above because this is the same expression with the definition of PSS.

The word "addition" is important.

No comment.

should be given to the Contractor whenever any situation affecting the safety is identified during execution of the Works, due to any Unforeseeable physical conditions, necessity to add or modify requirements in the Contract, and the like, all in accordance with relevant clauses of the Contract.

1.XX Cost to comply with Safety and Health requirements

The Executing Agency should recognize that sound health and safety measures require a reasonable expense the amount of which shall be taken into consideration when he prepares cost estimate for a contract. Some of such measures should figure in BOQ as individual pay items which, through payment during the execution of the Contract, will give the Contractor incentive to comply with those health and safety requirements in the Contract (for more details, refer to 3. Bill of Quantities in this User Guide). Furthermore, the cost estimate prepared by the Executing Agency should be based on a decent construction method in the given natural and social environment (e.g. Temporary Works to be used) . Such method shall be a reasonable one, which would be generally adopted to comply with the safety and health requirements imposed in the Contract, whether the corresponding pay items are given in the BOQ or not. The Executing Agency would, by doing so, be able to avoid cost underestimate, which will hinder the progress of implementation of the Project.

1.7 Structure of Specification

(1) JSSS shall be included as a part of the Specification for the Works as illustrated in the following Figure 1.1 [Incorporation of JSSS into Bid and Contract Documents]. The Specification for the Works shall be subdivided into two parts namely:

(a) The ~~Project~~ Safety Specification (including JSSS); and

(b) other parts of the Specification which shall comprise the specification for the general and technical aspects of the Works, excluding requirements for health and safety.

(NK6/2: NK requests JICA to review (b) again as mentioned in the middle column..)

コメントの追加 [YM13]: 入札時および施工段階での当事者それぞれの果たすべき役割についての JICA の方針です。したがって、英語の質を除き、内容はこのまま残してください。ただし、この文章の置き場所については、ここにするか、またはスペック全体の Preamble にするかといったことについては、検討のうえ適切な場所においていただければと思います。

コメントの追加 [YM14]: 適宜必要なブラッシュアップをお願いします。趣旨は以下の日本語のとおりです。

① 適切な安全対策を施すには相応のコストがかかることを実施機関は認識し、それを事業予算に反映しなければならない。

② この内、BOQ 上で表現すべきものについては具体的な Pay item を適切な形で落とし込む

③ また BOQ 上で表現されなくても、例えば仮設構造物のように、発注者として具体的な想定を持ったうえで必要なコストを算出し、それを事業予算として計上しておくべきである。

④ かかるプロセスは、コストの過小見積もりに起因する将来的な事業実施の妨げを防止する意味でも、発注者の利益になる。

コメントの追加 [YM15]: 以下、同様に削除願います。

Figure: Incorporation of JSSS in Bid and Contract Documents

List of Contract Documents and Sequence of Priority (GC 1.5):

1. the Contract Agreement (*if any*),
2. the Letter of Acceptance,
3. the Letter of Tender,
4. the Particular Conditions - Part A,
5. the Particular Conditions - Part B,
6. these General Conditions,
7. the Specification:

   other parts of the ~~The Technical~~ **Specification**:
   -no fixed content but usually containing:
   (a) General Requirements
   (b) Site Preparation
   (c) Excavation Works
   (d) Concrete Works
   (e) Others
8. the Drawings, and
9. the Schedules and any other documents forming part of the Contract.

Insert:
The **Project Safety Specification**
comprising:
1. The Particular Safety Specification, and
2. JSSS

Priorities:
1. Within the Project Safety Specification, the Particular Safety Specification shall have priority over JSSS, and
2. The Project Safety Specification shall have priority over the other parts of ~~Technical~~ Specification in respect of health and safety matters.

(JC6)

JC6: Modified by JICA.

1.3.3. Drafting of Particular Safety Specification

(1) JICA emphasise the importance of the Executing Agency assisting in the pursuit of a zero-accident rate on the Works, creating a safe working environment for the Works, by including for example: sufficient time for Bidding, reasonable Time(s) for Completion; reasonable, continuous and unobstructed access to the Site, detailed site information and sufficient ~~Site~~ *area(s) for the Site (including ,* working and storage areas), all wherever possible. Requirements shall be clearly described in the Bidding Documents. (JC7)

NK: We considers it seems better to add “for the achievement of a zero-accident rate on the Works” to (1) .

2. OK added above and edited.

JC7: modified to be in conformity with the definition in FIDIC.

NK: YH has no comment to the above modification.

Figure 1.1: Incorporation of JSSS into Bid and Contract Documents

List of Contract Documents and Sequence of Priority (GC 1.5):

1. the Contract Agreement (*if any*),
2. the Letter of Acceptance,
3. the Letter of Tender,
4. the Particular Conditions - Part A,
5. the Particular Conditions - Part B,
6. these General Conditions,
7. the Specification:

   other parts of the ~~The Technical~~ **Specification**:
   -no fixed content but usually containing:
   (a) General Requirements
   (b) Site Preparation
   (c) Excavation Works
   (d) Concrete Works
   (e) Others
8. the Drawings, and
9. the Schedules and any other documents forming part of the Contract.

Insert:
The **Project Safety Specification**
comprising:
1. The Particular Safety Specification, and
2. JSSS

Priorities:
1. Within the Project Safety Specification, the Particular Safety Specification shall have priority over JSSS, and
2. The Project Safety Specification shall have priority over the other parts of ~~Technical~~ the Specification in respect of health and safety matters.

(JC6)

JC6: Modified by JICA

1.8 Drafting of Particular Safety Specification

(1) JICA emphasise the importance of the Executing Agency assisting in the pursuit of a zero-accident rate on the Works, for example by creating a safe working environment for the Works, by including for example: sufficient time for Bidding, reasonable Time(s) for Completion; reasonable, continuous and unobstructed access to the Site, detailed site information and sufficient ~~Site~~ *area(s) for the Site (including ,* working and storage areas), all wherever possible. Requirements shall be clearly described in the Bidding Documents. (JC7)

NK: We considers it seems better to add “for the achievement of a zero-accident rate on the Works” to (1) .

OK added above and edited.

JC7: modified to be in conformity with the definition in FIDIC.

NK: YH has no comment to the above modification.

The addition of “detailed site information” is a change to the Contract as it not incumbent upon the Employer to provide this. The information that should be made available is already described in the first sentence of GC 4.10 and I do not suggest that this is changed.

If JICA reference to Site information is required, I suggest that the addition could perhaps be:

(2) The ~~Project~~ Safety Specification shall consist of two parts namely:

(a) Part 1: JICA Standard Safety Specification (JSSS):

Comprising JSSS as issued at the base date of the Contract

(b) Part 2: Particular Safety Specification:

Comprising a schedule containing the particular additions and modifications to JSSS, necessary to create a precise and relevant specification of the health and safety requirements for the Project.

Figure 1.1: Incorporation of JSSS into Bid and Contract Documents

List of Contract Documents and Sequence of Priority (GC 1.5):

1. the Contract Agreement (*if any*),
2. the Letter of Acceptance,
3. the Letter of Tender,
4. the Particular Conditions - Part A,
5. the Particular Conditions - Part B,
6. these General Conditions,
7. the Specification
   (1) the Safety Specifications
   (i) the Particular Safety Specifications
   (ii) JSSS
   (2) General and Technical Specifications

no fixed content but usually containing:

~~(i) other parts of the Specification:~~
~~*no fixed content but usually containing:*~~
~~-General Requirements~~

Priorities:
1. Within the Project Safety Specification, the Particular Safety Specification shall have priority over JSSS, and
2. The Project Safety Specification shall have priority over the other parts of the Specification in respect of health and

コメントの追加 [岡本16]: 7 the Specifications の部分はわかりにくいので、変更しては。

7. Specifications
   (1) Project Safety Specifications
   (i) Particular Safety Specifications
   (ii) JSSS
   (2) General and Technical Specifications

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	"available and relevant data on sub-surface and hydrological conditions at the Site, as required by GC 4.10." NK6/2: Agreed to revise as MD's suggestion.	
(2) As JSSS is a specification of minimum requirements for compliance by the Contractor, there shall be no substantial deletion or alteration of JSSS requirements in the Particular Safety Specification unless so justified due the scope of Works. *On the other hand, if the Project specific environment/context so requires, additional safety requirements shall be developed and included in the Particular Safety Specification.* (JC8)	(2) As JSSS is a specification of minimum requirements for compliance by the Contractor, there shall be no substantial deletion or alteration of JSSS requirements in the Particular Safety Specification unless so justified due the scope of Works, unless due to *Project specific requirements mean that additional or different safety requirements are to apply. In such cases, these additional or different requirements shall be developed and included in the Particular Safety Specification.* (JC8) *OK, I have edited the required changes as above.* NK6/2: To MD, The modified sentence is too long to be able to understand the meaning. NK revised it for MD's further editing.	
(3) Executing Agencies shall take care when they (or their consultants) prepare the Technical Specification and other parts of the Bidding Documents where JSSS is to be adopted, to ensure that there is no duplication of *or contradiction to* (JC8) the health and safety requirements contained in the Project Safety Specification. JC8: Modified.	(3) Executing Agencies shall take care when they ~~(or their consultants)~~ prepare ~~the Technical~~ other parts of the Specification and other parts of the Bidding Documents where JSSS is to be adopted, to ensure that there is no duplication of *or contradiction to* the health and safety requirements contained in the Project Safety Specification. JC8: Modified. *The use of "Technical Specification" requires further consideration and amendment, here and elsewhere in the document.* *Otherwise OK, no comment* NK6/2: Agreed.	**1.8 Drafting of Particular Safety Specification** ~~(1) JICA emphasise the importance of the Executing Agency assisting in the pursuit of a zero-accident rate on the Works, for example by creating a safe working environment for the Works, by including for example: sufficient time for Bidding, reasonable Time(s) for Completion; reasonable, continuous and unobstructed access to the Site, available and relevant data on sub-surface and hydrological conditions at the Site, as required by GC 4.10, and sufficient area(s) for the Site (including, working and storage areas), all wherever possible. Requirements shall be clearly described in the Bidding Documents.~~
1.3.4. Composition and Priority of Specifications: (1) The Project Safety Specification, together with the Technical Specification shall collectively form the "Specification" as defined in the Contract. (2) For the purposes of interpretation, the priority of the documents forming the Specification shall be in accordance with the following: (a) The "Project Safety Specification" shall have priority over other parts of the Specification in respect of health and safety requirements; and (b) Within the "Project Safety Specification" the Particular Safety Specification shall have priority over JSSS. (3) If an ambiguity or discrepancy is found in the documents, the Engineer shall issue any necessary clarification or instruction.	~~*1.3.1 Composition and Priority of Specifications:*~~ ~~(1) The Project Safety Specification, together with the Technical Specification shall collectively form the "Specification" as defined in the Contract.~~ ~~(2) For the purposes of interpretation, the priority of the documents forming the Specification shall be in accordance with the following:~~ ~~(a) The "Project Safety Specification" shall have priority over other parts of the Specification in respect of health and safety requirements; and~~ ~~(b) Within the "Project Safety Specification" the Particular Safety Specification shall have priority over JSSS.~~ ~~(3) If an ambiguity or discrepancy is found in the documents, the Engineer shall issue any necessary clarification or instruction.~~ *The above can be deleted as it is largely duplicated with 1.7.* NK6/2: Agreed.	~~(2)~~(1) As JSSS is a specification of minimum requirements for compliance by the Contractor, there shall be no substantial deletion or alteration of JSSS requirements in the Particular Safety Specification unless so justified due the scope of Works. When additional or different safety requirements are to be applied due to Project specific requirements, these requirements shall be developed and included in the Particular Safety Specification. (NK6/2: To MD, The modified sentence is too long to be able to understand the meaning. NK revised it for MD's further editing.)
1.3.5. Ongoing Projects (1) Unless otherwise agreed between JICA and the Executing Agency, JSSS shall not be automatically used on all JICA funded Projects, JSSS shall only be used when it becomes effective on the particular ODA Project as described in this User Guide 1.1.3 [*Effectiveness*]. (2) Where JSSS is already in use on any Project and by further agreement between JICA and the Executing Agency, future	**1.9 Use on Ongoing Projects** (1) Unless otherwise agreed between JICA and the Executing Agency, JSSS shall not be automatically used on all JICA funded Projects, JSSS shall only be used when it becomes effective on the particular ODA Project as described in this guide, in clause 1.1.3 [*Effectiveness*].	

コメントの追加 [伊藤17]: This doesn't relate to Particular safety specification. So, how about moving to right after 1.6, for example?

issues/revisions of JSSS may be applied after the date that such future issues/revisions are published on line subject to issue by the Engineer of an appropriate Variation under GC 13.1 [*Right to Vary*].

1.3.6. JICA Standard Bidding Documents

(1) JICA intend to amend and re-issue the "Standard Bidding Documents Under Japanese ODA Loans, Procurement of Works", published by the Japan International Cooperation Agency (JICA) (hereinafter referred to as "JSBD") to cover the required amendments to accommodate JSSS. (JC9)

(2) In order that JSSS can be used without delay on particular Projects, the Bidding Documents for such Projects shall be drafted to take account of the above and following amendments in advance of the publication of the next issue of JSBD.(JC9)

NK: The amendment to JSBD is not necessary as the PC is not amended related with JSSS now. We consider the above (1) and (2) can be deleted and propose to replace them with the following if appreciate:

1) To make the Project Safety Specification as one of Bidding Documents, it shall be included as a part of Specification described in Section VI. Works Requirement of Standard Bidding Documents Under Japanese ODA Loans, Procurement of Works", published by the Japan International Cooperation Agency (JICA) (hereinafter referred to as "JSBD").

3. Yes, I fully understand this however this is not PC it is the Instructions to Bidders (ITB).

4. I had prepared appropriate information in the earlier Issue 6 (please refer to Annex 1.3 Required Amendments to JICA Standard Bidding Documents) but JICA have deleted this and instructed that no change in SBD is to be suggested.

5. We have dealt with PC in a manner which should probably be OK but the document is silent on ITB, and some thought needs to be given to this.

6. The following needs some mention:

JC9: Let's keep this and 1) to 3) below.

1) The form of "Safety Plan" in Section IV. Bidding Forms shall include an explanatory note to the Bidders to inform them that they shall submit a safety plan in their bid in accordance with ~~Section IV. Bidding Forms BF 39, SBD page 173 requires improvement by copy pasting the content of~~ Annex 1.2 of JSSS "Bid Stage Safety Plan". (JC10)

2) HSO shall be specified as one of the Key personnel to be evaluated in Section III. Evaluation and Qualification Criteria ~~e.g. SBD page 110 items 1.1.1, needs change to included reference to HSO~~, (JC10)

3) Bidders Safety Declaration shall be added in Section IV Bidding Forms~~requires some instruction as to where in the Bid forms, this is to be included~~. (JC10)

7. I suggest it is better if the above is left in for now so that this can be discussed between JICA and NK.

JC10: JICA may time to time bring "mini-update" into our SBD. So, we prefer not to mention the concrete page number, which may be changed.

(2) Where JSSS is already in use on any Project and by further agreement between JICA and the Executing Agency, future issues/revisions of JSSS may be applied after the date that such future issues/revisions are published on line subject to issue by the Engineer of an appropriate Variation under GC 13.1 [*Right to Vary*].

1.10 JICA Standard Bidding Documents

(1) JICA intend to amend and re-issue the "Standard Bidding Documents Under Japanese ODA Loans, Procurement of Works", published by the Japan International Cooperation Agency (JICA) (hereinafter referred to as "JSBD") to cover the required amendments to accommodate JSSS. (JC9)

(2) In order that JSSS can be used without delay and where so agreed to be used on particular Projects, the Bidding Documents for such Projects shall be drafted to take account of this guide in advance of ~~the~~ publication of the next issue of JSBD.(JC9)

NK: The amendment to JSBD is not necessary as the PC is not amended related with JSSS now. We consider the above (1) and (2) can be deleted and propose to replace them with the following if appreciate:

1) To make the Project Safety Specification as one of Bidding Documents, it shall be included as a part of Specification described in Section VI. Works Requirement of Standard Bidding Documents Under Japanese ODA Loans, Procurement of Works", published by the Japan International Cooperation Agency (JICA) (hereinafter referred to as "JSBD").

Yes, I fully understand this however this is not PC it is the Instructions to Bidders (ITB).

I had prepared appropriate information in the earlier Issue 6 (please refer to Annex 1.3 Required Amendments to JICA Standard Bidding Documents) but JICA have deleted this and instructed that no change in SBD is to be suggested.

We have dealt with PC in a manner which should probably be OK but the document is silent on ITB, and some thought needs to be given to this.

The following needs some mention:

JC9: Let's keep this and 1) to 3) below.

1) The form of "Safety Plan" in Section IV. Bidding Forms shall include an explanatory note to the Bidders to inform them that they shall submit a safety plan in their bid in accordance with ~~Section IV. Bidding Forms BF 39, SBD page 173 requires improvement by copy pasting the content of~~ Annex 1.2 of JSSS "Bid Stage Safety Plan". (JC10)

2) HSO shall be specified as one of the Key personnel to be evaluated in Section III. Evaluation and Qualification Criteria ~~e.g. SBD page 110 items 1.1.1, needs change to included reference to HSO~~, (JC10)

3) Bidders Safety Declaration shall be added in Section IV Bidding Forms~~requires some instruction as to where in the Bid forms, this is to be included~~. (JC10)

I suggest it is better if the above is left in for now so that this can be discussed between JICA and NK.

JC10: JICA may time to time bring "mini-update" into our SBD. So, we prefer not to mention the concrete page number, which may be changed.

Please see above drafting changes.

NK6/2: Agreed.

~~(3)~~(2) Executing Agencies shall take care when they prepare other parts of the Specification and other parts of the Bidding Documents where JSSS is to be adopted, to ensure that there is no duplication of or contradiction to the health and safety requirements contained in the Project Safety Specification.

1.9 Use on Ongoing Projects

(1) Unless otherwise agreed between JICA and the Executing Agency, JSSS shall not be automatically used on all JICA funded Projects, JSSS shall only be used when it becomes effective on the particular ODA Project as described in this guide, in clause 1.1.3 [*Effectiveness*].

(2) Where JSSS is already in use on any Project and by further agreement between JICA and the Executing Agency, future issues/revisions of JSSS may be applied after the date that such future issues/revisions are published on line subject to issue by the Engineer of an appropriate Variation under GC 13.1 [*Right to Vary*].

1.10 JICA Standard Bidding Documents

(1) JICA intend to amend and re-issue the "Standard Bidding Documents Under Japanese ODA Loans, Procurement of Works", published by the Japan International Cooperation Agency (JICA) (hereinafter referred to as "JSBD") to cover the required amendments to accommodate JSSS.

(2) In order that JSSS can be used without delay and where so agreed to be used on particular Projects, the Bidding Documents for such

		Projects shall be drafted to take account of this guide in advance of publication of the next issue of JSBD. (3) The form of "Safety Plan" in Section IV. Bidding Forms shall include an explanatory note to the Bidders to inform them that they shall submit a safety plan in their bid in accordance with Annex 1.2 of JSSS "Bid Stage Safety Plan" (4) HSO shall be specified as one of the Key personnel to be evaluated in Section III. Evaluation and Qualification Criteria, (5) Bidders Safety Declaration shall be added in Section IV Bidding Forms.
~~**1.4. The Particular Safety Specification**~~ ~~1.4.1. General~~ ~~(1) The Particular Safety Specification shall be carefully and precisely drafted by amending the various general requirement clauses of JSSS by adding particular requirements to ensure that the scope is precisely specified so that the Contractor's obligations are clear and unambiguous.~~ ~~(2) The amendments shall cover the examples listed below, noting that this listing is not exhaustive.~~ ~~(3) Any reference to "the Particular Safety Specification" shall mean that either full requirements are required to be stated in the Particular Safety Specification or that reference is to be made in that specification to parts of the Technical Specification or other documents comprised in the Contract, where full requirements are stated.(JC10)~~ ~~*Still Under consideration by DCI:*~~ ~~JC10: Not very clear. Would you rephrase?~~ ~~(4) A check list shall be included at the beginning of the Particular Safety Specification, in this User Guide which shall list all of the clauses in the following table, state briefly what action has been taken and also indicate where full requirements are stated.~~ ~~NK: The Check list may be helpful for the Employer to understand and avoid missing items.~~	**2 PARTICULAR SAFETY SPECIFICATION** **2.1 Drafting Generally** (1) The Particular Safety Specification shall be carefully and precisely drafted by amending the various general requirement clauses of JSSS by adding particular requirements to ensure that the scope is precisely specified and so that the Contractor's obligations shall be clear and unambiguous. (2) The amendments shall cover the examples listed in the table in clause 2.2 below, noting that this listing is not exhaustive. ~~(3) Any reference to "the Particular Safety Specification" shall mean that either full requirements are required to be stated in the Particular Safety Specification or that reference is to be made in that specification to parts of the Technical Specification or other documents comprised in the Contract, where full requirements are stated.(JC10)~~ JC10: Not very clear. Would you rephrase? *Rephrased as follows:* NK6/2: agreed. (3) The use in JSSS of the phrase "specified in the Particular Safety Specification" shall mean that either full requirements shall be specified in the Particular Safety Specification or that reference shall be made in the Particular Safety Specification to other	**2 PARTICULAR SAFETY SPECIFICATION** **2.1 Drafting Generally** (1) The Particular Safety Specification shall be carefully and precisely drafted by amending the various general requirement clauses of JSSS by adding particular requirements to ensure that the scope is precisely specified and so that the Contractor's obligations shall be clear and unambiguous. (2) The amendments shall cover the examples listed in the table in clause 2.2 below, noting that this listing is not exhaustive. (3) The use in JSSS of the phrase "specified in the Particular Safety Specification" shall mean that either full requirements shall be specified in the Particular Safety Specification or that reference shall be made in the Particular Safety Specification to other

~~*Yes but it is also necessary for us to prepare the detail first and then decide if it is good idea to give the Employer an easy option.*~~ ~~*This was originally designed by is to allow JICA to check whether changes had been incorporated properly but this is not the case and there appears to be little point in preparing a check list if nobody is checking.*~~ NP	particular parts of the Specification or other documents comprised in the Contract, where full requirements are so specified. (4) ~~A checklist shall be included with the Particular Safety Specification, which shall list all of the clauses in the following table, state briefly what action has been taken and also indicate where full requirements are specified so that this can be checked, if required.~~ NK: The Check list may be helpful for the Employer to understand and avoid missing items. Yes but it is also necessary for us to prepare the detail first and then decide if it is good idea to give the Employer an easy option. This was originally designed by is to allow JICA to check whether changes had been incorporated properly but this is not the case and there appears to be little point in preparing a check list if nobody is checking. The Employer can check against the following tabulated list and there is no point in duplicating this. If JICA was checking, I would suggest a separate checklist as drafted in my earlier issues. NK6/2: agreed.	particular parts of the Specification or other documents comprised in the Contract, where full requirements are so specified.

~~1.4.2.~~1.4.1. JSSS Items to be Considered for the Particular Safety Specification.

The following table still requires our further coordination with all other chapters of JSSS. Further editing and addition is necessary and all clause numbering and descriptions ultimately require to be coordinated and updated

JSSS Reference	Particular Safety Specification Requirements
~~1.4.10 Compliance with JSSS and Other Regulations~~	~~*The Contractor's obligations to provide temporary services and facilities generally finish at the end of the Time for Completion plus any additional period(s) within the Defects Notification Period (DNP) when the Contractor may be completing any outstanding work or remedying any defective work, If for any reason the Contractor is required to maintain a further presence at the Site during the DNP, this shall be clearly stated in the Particular Safety Specification together with the reasons, scope and duration of such presence.*~~ ~~*Suitable facility for pricing shall also be included in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items, with unit rate for provision being shown as "month".*~~ ~~*The method of payment to the Contractor shall also be specified*~~ (JC10)

2.2 Particular Requirements

In addition to the requirements described in this guide in Clause 2.1 [*Drafting Generally*], the Executing Agency shall consider the requirements of all clauses in the following table and include appropriate clauses in the Particular Safety Specification:

~~JSSS~~ Reference	Particular Safety Specification Requirements
~~1.4.10 Compliance with JSSS and Other Regulations~~ ~~*Regulations*~~ JSSS 1.4.10 Continued Compliance with JSSS throughout the DNP	~~*The Contractor's obligations to provide temporary services and facilities generally finish at the end of the Time for Completion plus any additional period(s) within the Defects Notification Period (DNP) when the Contractor may be completing any outstanding work or remedying any defective work, If for any reason the Contractor is required to maintain a further presence at the Site during the DNP, this shall be clearly stated in the Particular Safety Specification together with the reasons, scope and duration of such presence.*~~ ~~*Suitable facility for pricing shall also be included in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items, with unit rate for provision being shown as "month".*~~ ~~*The method of payment to the Contractor shall also be specified*~~ (JC10) JC10: Please see our comments to JSSS 1.4.10.

2.2 Particular Requirements

In addition to the requirements described in this guide in Clause 2.1 [*Drafting Generally*], the Executing Agency shall consider the requirements of all clauses in the following table and include appropriate clauses in the Particular Safety Specification:

Reference	Particular Safety Specification Requirements
~~1.4.10 Continued Compliance with JSSS throughout the DNP~~	The Contractor's obligations to provide temporary services and facilities generally finish at the end of the Time for Completion plus any additional period(s) within the Defects Notification Period (DNP) when the Contractor may be completing any outstanding work or remedying any defective work. If for any reason the Contractor is required to maintain a further presence at the Site during the DNP, this shall be clearly stated in the Particular Safety Specification together with the reasons, scope and duration of such presence as mentioned in 1.24 Accident Response Plan and 1.36 Health Matters hereunder in 2.2.

コメントの追加 [岡本22]: When the Works, Sections or any part of the Works are taken over by the Employer with the exception of outstanding works としては。ここでは Section が入っていない。

コメントの追加 [伊藤23]: 別紙 Comments to User Guide を参照。

	NK6/2: JICA と MD 氏の意図(中央欄)が異なっていますため、1.7.10 の変更を提案致します。 JC10: Please see our comments to JSSS 1.4.10 (below). *(Issue 7 before revision)* *1.4.10 Unless otherwise specified in the Particular Safety Specification, the Contractor shall comply with the requirements of JSSS throughout the Time for Completion and Defects Notification Period. , ~~during any additional period(s) within the Defects Notification Period when the Contractor may be completing any outstanding work or remedying any defective work and as may be further specified in the Particular Safety Specification~~.* (Comment to JSSS 1.4.10) We are afraid that our intention was not very much understood by NK/MD. At any time during DNP, the Contractor may be required to intervene for repair. So safety measures must continue to be kept during all DNP. With this modification, Particular Safety Specification in User Guide will not be necessary any more. (NK added "the sentence underlined is deleted".) NK: 1.4.10 is revised below. *(Issue 8 after revision by JICA comment)* *1.4.10 Unless otherwise specified in the Particular Safety Specification, the Contractor shall comply with the requirements of JSSS throughout the Time for Completion and Defects Notification Period.* NK: 当初、Time for Completion だけを第 1 章に規定していましたが、DNP で行う修理作業の安全対策も JSSS に規定すべきとの意見があり、DNP を追記しました。そのため、1.4.10 では DNP 期間まで JSSS の安全対策を実施することとなりました。その結果、請負者は医療施設やサービスも含め、対策を継続する必要があるという規定となりました。 MD 氏は、Taking Over Certificate(TOC)が出た時点で医療施設の提供は終了する、DNP 期間でも必要な施設は User Guide に規定するとしています。 NK 提案：JICA の意図と MD 氏の意見を合わせて次の変更を提案します。 *(Issue 8 proposed by NK)* *1.4.10 ~~Unless otherwise specified in the Particular Safety Specification~~. The Contractor shall comply with the requirements of JSSS throughout the Time for Completion and Defects Notification Period.* *The Contractor's obligations to provide temporary services and facilities finish at the end of the Time for Completion unless otherwise specified in the Particular Safety Specification.*		JC deleted. *Please refer to our comments in JSSS 1.4.10.* *We believe that interpretation of FIDIC requirements is not correct and i* *f changed as suggested, this will create additional and incorrect obligations and cost for the Contractor (and JICA), that are not contractually correct or supportable.* *We recommend that the clause is correct as drafted and should be reinstated to avoid future problems. We have modified the drafting to make sure that all reasons for these requirements are made clear and fully understandable by the Executing Agencies and their consultants.* Please refer to GC 8.2 and note that the Contractor shall complete the whole of the Works within the "Time for Completion". The Contractor's obligations to provide temporary health and safety services and facilities for the use of the Employer's Personnel prescribed by JSSS (for which he is paid as part of the Contract Price) will in principle, finish at the date stated in the Taking-Over Certificate and shall not continue during the Defects Notification Period (DNP). All work should be completed by date stated in the Taking-Over Certificate such that the Employer can take over possession of the Works, occupy and use same. This may exclude minor outstanding work and defects remedial work which will not substantially affect the use of the Works for their intended purpose and which shall be finished or remedied by the Contractor as soon as possible and within such reasonable time as is instructed by the Engineer. If the Contractor is still required to execute significant outstanding and remedial work affecting the Employer's use of the Works on the proposed date for taking over, then simply the Taking-Over Certificate should not be issued. Otherwise if outstanding and remedial works and are at acceptable levels and subject to compliance with the Contract, the Taking-Over Certificate can be issued and the Contractor can largely demobilise after the date stated in the certificate. The Contractor shall continue to assign (at his own cost) personnel for completing outstanding work or remedial work during and at the end of the DNP. Consequently, the Contractor has continuing obligations for the health and safety of his personnel for this purpose. Therefore, if the Employer requires the Contractor to continue with the provision of any of the temporary health and safety services and facilities required by JSSS during the DNP then this shall be particularly stated in the Particular Safety Specification together with the reasons, scope and duration(s) for such provision and associated conditions. Similarly, if the Employer requires that any of the Contractor's temporary health and safety services and facilities required by JSSS are to be transferred in future to the Employer, then these shall be listed and clearly		

		described in the Particular Safety Specification and the same details given. ~~Separate items shall be included in the Bill of Quantities to allow pricing of the required services and facilities under this clause with separate lump sum items given for mobilisation and removal and monthly rate items given for ongoing provision and maintenance.~~ ~~The method of payment to the Contractor during the DNP shall also be specified given the differing rules for application and issue of Interim Certificates and retention during the DNP.~~ NK6/2: The issues discussed by JICA and MD are different how to specify continued compliance to requirements during the DNP stipulated in JSSS. JICA want to specify to continue for the Contractor to take safety measures for workers during the DNP. MD wants specify requirements for facilities and services such as medical services for the Employer during the DNP. We propose to revise 1.4.10 as shown below. *1.4.10 ~~Unless otherwise specified in the Particular Safety Specification,~~ The Contractor shall comply with the requirements of JSSS throughout the Time for Completion and Defects Notification Period.* *The Contractor's obligations to provide temporary services and facilities finish at the end of the Time for Completion unless otherwise specified in the Particular Safety Specification.*		
~~1.10 Engineer's Safety Representative~~	~~*The Particular Safety Specification shall state if the Engineer will appoint a full-time Safety Representative as an assistant upon the Works.*~~ ~~*If no such requirement is specified in the Particular Safety Specification it is to be assumed that the Engineer or a duly authorised assistant shall act in a part-time capacity.*~~ (JC11) JC11: Please see our comment in JSSS 1.10	~~1.10 Engineer's Safety Representative~~	~~*The Particular Safety Specification shall state if the Engineer will appoint a full-time Safety Representative as an assistant upon the Works.*~~ ~~*If no such requirement is specified in the Particular Safety Specification it is to be assumed that the Engineer or a duly authorised assistant shall act in a part-time capacity.*~~ (JC11) JC11: Please see our comment in JSSS 1.10 *I have no comment or objection to this deletion.* NK6/2: agreed.		
1.12 Health and Safety Officer at the Site (HSO)	The general basis JSSS is that the HSO is required to be assigned full-time upon the Works and to spend all of his time on health and safety management. JICA advise that full-time assignment is the normal requirement and part-time or shared assignment is only allowable on extremely small Projects or when *part-time or shared assignment is justified with particular reasons*~~separate written justification has been provided by the Executing Agency to JICA~~. In addition to stating as above, facility (JC12) for pricing the cost of HSO shall be included in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1:	1.12 Health and Safety Officer at the Site (HSO)	Refer to JSSS 1.12 where the minimum required period of experience and types of qualification for the HSO are described. If different periods of experience or qualifications are a legal requirement under the Laws of the Country, then these shall be clearly stated in the Particular Safety Specification. The general basis JSSS is that the HSO is required to be assigned full-time upon the Works and to spend all of his time on health and safety management. JICA advise that such full-time assignment is the normal requirement and part-time or shared assignment is only allowable on extremely small Projects or when *part-time or shared assignment is*	1.12 Health and Safety Officer at the Site (HSO)	Refer to JSSS 1.12 where the minimum required period of experience and types of qualification for the HSO are described. If different periods of experience or qualifications are ~~a~~ legal requirements under the Laws of the Country, then these shall be clearly stated in the Particular Safety Specification. The general basis JSSS is that the HSO is required to be assigned full-time upon the Works and to spend all of his time on health and safety management. JICA advise that such full-time assignment is the normal requirement and part-time or shared assignment is only allowable on extremely small

書式を変更: フォントの色：赤

	General Items, to “Provide HSO and staff” with unit rate for provision being shown as “month”. JC12: What is “facility”? NK(YH): I understand that HSO may not be paid under BQ, is it correct? If so, I think facility will not be paid in BQ. NK(SS): Dasu Hydropower Project in Pakistan has included the payment for HSO in BQ and executed it. Quantity in months shall be of the required period for provision which will usually be the Time for Completion and any allowance as required during the Defects Notification Period. (JC13) NK: We think this shall be recorded in the Minutes of Discussion at JICA appraisal time. NK: May we know what facility do you expect? For example, transportation for HSO and his staff? By “facility”: we mean allowing the Bidder the facility for pricing this requirement in his bid. Please let me know if you think we need to state facilities. JC13: It is necessary to consider how to pay for Safety Staff during DNP. It is doubtful to include payment for the Safety Staff during DNP in BQ. NKSS: Works in DNP is the responsibility of the Contractor, so the cost in the DNP shall be borne by the Contractor.		*~~justified with particular reasons~~~~separate written justification has been provided by the Executing Agency to JICA~~*. *The above change is OK but is it JICA that reviews the justification and given reasons and at what stage?* *The requirement must be correct and clearly stated in the Bidding documents as a common basis and not changed thereafter.* *I suggest the following addition to accompany this change:* If the justification for part-time or shared assignment is acceptable to JICA, the agreed requirements shall be clearly stated in the Particular Safety Specification. NK6/2: JICA may not be involved in agreeing to the justification, so we deleted JICA. ~~In addition to stating as above, facility (JC12) for pricing the cost of HSO shall be included in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items, to “Provide HSO and staff” with unit rate for provision being shown as “month”~~. *I have revised the approach to the inclusion of pay items for JSSS with the Bid Bill of Quantities, please refer to 3. BILL OF QUANTITIES on the last page of this guide.* *This simplifies the text of this part and avoids any need for consistency checks.* JC12: What is “facility”? NK(YH): I understand that HSO may not be paid under BQ, is it correct? If so, I think facility will not be paid in BQ. NK(SS): Dasu Hydropower Project in Pakistan has included the payment for HSO in BQ and executed it. *It did mean the facility for pricing but I have redrafted this as above.* ~~Quantity in months shall be of the required period for provision which will usually be the Time for Completion and any allowance as required during the Defects Notification Period. (JC13)~~ NK: We think this shall be recorded in the Minutes of Discussion at JICA appraisal time. NK: May we know what facility do you expect? For example, transportation for HSO and his staff? By “facility”: we mean allowing the Bidder the facility for pricing this requirement in his bid. Please let me know if you think we need to state facilities. JC13: It is necessary to consider how to pay for Safety Staff during DNP. It is doubtful to include payment for the Safety Staff during DNP in BQ.		Projects or when part-time or shared assignment is justified with particular reasons. If the justification for part-time or shared assignment is acceptable, the accepted requirements shall be clearly stated in the Particular Safety Specification.

			NK: Works in DNP is the responsibility of the Contractor, so the cost in the DNP shall be borne by the Contractor. *Correct comment, it should not be paid.* *Redrafted anyway as above.*		
1.21 Skill Training	The Particular Safety Specification shall state whether classroom-based skill training of counterpart Operation Leaders is, or is not, required. The Contractor shall be expected in any event to be provide OJT via his senior personnel to local counterparts. The Particular Safety Specification shall state whether the Contractor is allowed to bring into the Country for use upon the Works any unqualified, unskilled or inexperienced foreign Contractor's Personnel. If skill training is required, the Particular Safety Specification shall state how many candidates shall be selected, for which skill groups and for how long. This shall be determined by the scope and nature of the Works.(JC14) JC14: Please modify referring to the 1.21 Skill Training modified by JICA. NK6/2: 1.21 is modified by JICA as below. 1.21 Skill Training 1.21.1 The Contractor is reminded of his obligations under GC 6.9 [Contractor's Personnel] which require that all Contractor's Personnel shall be appropriately qualified, skilled and experienced in their respective trades or occupations. 1.21.2 The Contractor is also reminded of his obligations under GC 6.1 [Engagement of Staff and Labour] according to which the Contractor is encouraged, to the extent practicable and reasonable, to mobilize the local human resources with appropriate qualifications and experience. However, if the qualified, skilled and experienced Contractor's Personnel required by the Contract is not available in the Country or not available in the numbers or of the standards of for the periods required, the Contractor shall (1) source and assign upon the Works Contractor's Personnel (of at least Operation Leader and skilled worker status) from other countries; and/or (2) recruit candidates in the Country and train them to provide the skill required to properly perform their assignments. 1.21.3 Further Training of Operation Leaders (1) Unless otherwise specified in the Particular Safety Specification and without limiting or changing the Contractor's obligations under the Contract, the Contractor shall be required to select candidates from his local skilled workforce that he considers are suitable to act as future Operation Leaders. (2) The Contractor shall ensure that his personnel work closely with and transfer necessary knowledge and skills	1.21 Skill Training	~~The Particular Safety Specification shall state whether classroom-based skill training of *counterpart Operation Leaders* is, or is not, required. The Contractor shall be expected in any event to be provide OJT via his senior personnel to local counterparts.~~ *This original text may require further change dependent upon NK/JICA clarification of requirements, please refer to query in Chapter 1* ~~The Particular Safety Specification shall state whether the Contractor is allowed to bring into the Country for use upon the Works any unqualified, unskilled or inexperienced foreign Contractor's Personnel.~~ If skill training is required, the Particular Safety Specification shall state how many candidates shall be selected, for which skill groups and for how long. This shall be determined by the scope and nature of the Works. (JC14) JC14: Please modify referring to the 1.21 Skill Training modified by JICA. NK6/2: Modified 1.21 is copied in left column. *Please refer to my comments in Chapter 1, 1.21 as I do not agree that such levels of skills training are necessary or contractually correct.* *This training suggestion started off as OJT from assigned foreign Operation leaders but with the recent transfer of trainers from the operation training by JICA, I believe that this is now evolving into excessive and expensive requirements.* *I would appreciate your answers to my query on this item in chapter 1 before I attempt to amend this clause.* *I have no objection to the changes made by JICA below.* NK6/2: The skill training requirement shall be determined by the Contractor depending availability of Operation Leaders in the country. If the Employer specifies requirements regarding training, the Contractor may claims by the reason of the requirements when the Works cannot execute as expected. Therefore, this sentences is deleted. The Particular Safety Specification shall specify for example:	1.21 Skill Training	The Particular Safety Specification shall state whether the Contractor is allowed to bring into the Country for use upon the Works any unqualified, unskilled or inexperienced foreign Contractor's Personnel. The Particular Safety Specification shall specify for example: (1) Requirements for teachers.

コメントの追加 [YM24]: 1.21.4 と同様の記載になっているようですが、例えば卒業して間もないエンジニアクラスの人材がこの inexperienced という言葉で排除されてはしまいませんでしょうか。(そういう人は inexperienced かもしれないけれども qualified ではあるはずです)
という観点からすると、少なくとも inexperienced という単語は削除してよいのではないでしょうか。
(1.21.4 も整合性を持たせるように調整してください)

コメントの追加 [K25]: If it is stated " be not allowed", no apprentice, fresh man, etc. are not entitled to be at site. This is not practical, isn't it? For example, a group of formwork carpenters consists of skilled carpenter foreman, skilled carpenters and apprentices.

via OJT to such candidates to develop their management abilities, skill levels and awareness of international safety and quality standards.

(3) To compliment the OJT, the Contractor shall provide classroom-based training courses and assign qualified instructors to develop the ability skills and awareness and also to pass on their knowledge in future to their working colleagues and compatriots.

(4) The Contractor shall develop the syllabus and teaching hours appropriately and submit details to the Engineer for his consent.

1.21.4 Unless otherwise specified in the Particular Safety Specification, the Contractor shall not bring into the Country for use upon the Works any unqualified, unskilled or inexperienced foreign Contractor's Personnel.

NK6/2: Our comments is shown in right column.

The Particular Safety Specification shall specify for example:

(1) Requirements for classrooms and whether these can be of the Contractor's office facilities at the Site.

(2) Requirements for training facilities (for example furniture, equipment, computers, sample tools and working equipment, other teaching aids and the like).

(3) Requirements for teachers.

(4) If classroom lessons are to be full-time or part-time

(5) ~~*That candidates shall be paid their full wages and allowances during teaching time.*~~ (JC15)

JC15: This is already stated in JSSS 1.19.3. So, no need to be mentioned in Particular Safety Specification.

(6) That the Contractor shall design syllabi to compliment the candidates' skill group, their work and position at the Site.

(7) In addition to skill training, syllabi shall include health and safety training to an international level of appreciation with a general introduction to OSHA and other international safety standards and regulations. (JC16)

JC15: There are few personnel who can train as mentioned above. Please review the above referring to the 1.21 revised by JICA.

(8) Requirements for testing of candidates for example that the Contractor shall test candidates upon completion of their course, prepare and issue certificates of attendance and successful completion of each course.

NK: We have an opinion that such details as (1) to (8) are necessary to specify by the Employer.

Yes that is the requirement.

In addition to stating as above and if there is a requirement for such classroom-based skill training,

~~(1) Requirements for classrooms and whether these can be of the Contractor's office facilities at the Site.~~

~~(2) Requirements for training facilities (for example furniture, equipment, computers, sample tools and working equipment, other teaching aids and the like).~~

(3) Requirements for teachers.

~~(4) If classroom lessons are to be full-time or part-time~~

(5) ~~*That candidates shall be paid their full wages and allowances during teaching time.*~~ (JC15)

JC15: This is already stated in JSSS 1.19.3. So, no need to be mentioned in Particular Safety Specification.

Yes correct.

(6) That the Contractor shall design syllabi to compliment the candidates' skill group, their work and position at the Site.

(7) In addition to skill training, syllabi shall include health and safety training to an international level of appreciation with a general introduction to OSHA and other international safety standards and regulations. (JC16)

JC16: There are few personnel who can train as mentioned above. Please review the above referring to the 1.21 revised by JICA.

NK6/2: Recently, safety training is made internationally by training centers and also by internet distance training, so the above requirement can be executed by contractors.

(8) Requirements for testing of candidates for example that the Contractor shall test candidates upon completion of their course, prepare and issue certificates of attendance and successful completion of each course.

NK: We have an opinion that such details as (1) to (8) are necessary to specify by the Employer.

Yes, that is the requirement.

~~In addition to stating as above and if there is a requirement for such classroom-based skill training, appropriate pay items shall be included in the Bill of Quantities to allow pricing of the required services and facilities under this clause as follows:~~

~~Assignment of Operation Leaders as teachers:~~

All of the above needs to be adjusted and coordinated with the final version of JSSS 1.21 as it has now been changed by JICA comment from OJT teaching by Operation Leaders to full skills training and teaching by qualified trainers which I do not agree with. In any

(2) That the Contractor shall design syllabi to compliment the candidates' skill group, their work and position at the Site.

(3) In addition to skill training, syllabi shall include health and safety training to an international level of appreciation with a general introduction to OSHA and other international safety standards and regulations.

(4) Requirements for testing of candidates for example that the Contractor shall test candidates upon completion of their course, prepare and issue certificates of attendance and successful completion of each course.

コメントの追加 [伊藤26]: I think these can be integrated in the main text of JSSS, not in PSS. Some ((2) and (4)) have already been provided in JSSS and others ((1) and (3)) are not.

	appropriate pay items shall be included for each of the above in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items for: Assignment of Operation Leaders as teachers: Unit: man-month Quantity: Total estimated man-months Use of Training Facilities: Sum If any Training Facilities are to be handed to the Employer or training aids given to candidates, then these shall be clearly specified in the Particular Safety Specification, items shall be listed with quantities given, otherwise all such Training Facilities shall remain the property of the Contractor and shall be removed on completion. NK: May we know the meaning of "issued to candidates" or describe in other words? e.g. notebook computers, books, training and aids, I have rephrased		*event I await the final version of JSSS 1.21 before I can edit or rephrase this.* ~~Unit: man-month Quantity: Total estimated man-months~~ ~~Use of Training Facilities: Sum~~ *The above is transferred to 3. BILL OF QUANTITIES on the last page of this guide.* ~~If any Training Facilities are to be handed to the Employer or training aids given to candidates, then these shall be clearly specified in the Particular Safety Specification, items shall be listed with quantities given, otherwise all such Training Facilities shall remain the property of the Contractor and shall be removed on completion.~~ NK: May we know the meaning of "issued to candidates" or describe in other words? e.g. notebook computers, books, training and aids, I have rephrased NK6/2: Revised as the right column.		
1.22.7 Rescue teams and equipment (JC17)	NK: The requirement for rescue teams and rescue equipment shall be specified. Not in this case this is for Dangerous Work for which the Contractor shall be responsible for this to ensure the safety of his workers. JC17: 1.22.8 was deleted by JICA, so this particular is not needed. Modified 1.24.7 stipulated emergency rescue and training. NK: I recalled the rescue drill in the subway Blue Line construction project as in Thailand shown the photos below: Safety team is under drill to transport an assumed victim from the tunnel to outside.  	1.22.7 Rescue teams and equipment (JC17)	NK: The requirement for rescue teams and rescue equipment shall be specified. Not in this case this is for Dangerous Work for which the Contractor shall be responsible for this to ensure the safety of his workers. JC17: 1.22.8 was deleted by JICA, so this particular is not needed. Modified 1.24.7 stipulated emergency rescue and training. NK: I recalled the rescue drill in the subway Blue Line construction project as in Thailand shown the photos below: Safety team is under drill to transport an assumed victim from the tunnel to outside. *I am confused over the content of JSSS 1.22.7 now as this has been combined with 1.24.7 by JICA.* *I assume that this clause is not now required but safety rescue training by the Contractor for his own personnel engaged on Dangerous Work is required.* *I will edit the above when I have received your advice and have reviewed your final version of chapter 1.* NK: Deleted.	1.22.7 Rescue teams and equipment	
1.22.12 Hazardous Substances	~~After following Site survey and investigation,~~If it is considered that there is any likelihood of the existence of Hazardous Substances at the Site of the Works or in any existing buildings and structures, ~~or in the Works, then this shall be stated in the Particularly Safety Specification and~~ the Employer's requirements for removal and disposal by the Contractor shall be stated. (JC18) JC18: Is there any possibility of existing of Hazardous Substances in the Works?	1.22.12 Hazardous Substances	~~After following Site survey and investigation,~~If it is considered that there is any likelihood of the existence of Hazardous Substances at the Site of the Works or in any existing buildings and structures, ~~or in the Works, then this shall be stated in the Particularly Safety Specification and~~ the Employer's	1.22.12 Hazardous Substances	After Site survey and investigation has been carried out by the Executing Agency during the design stage, i~~I~~f it is considered that there is any likelihood of the existence of Hazardous Substances at the Site of the Works or in any existing buildings and structures, the

	NK: Existing of asbestos is mentioned for example in 1.22.12. Bangladesh seems there are still asbestos as reported below. Asbestos : Country Profile BANGLADESH http://www.google.co.jp/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=2ahUKEwje-qDjlq3pAhVGZt4KHecYBggQFjAAegQIARAB&url=http%3A%2F%2Fwww.krcard.org%2Fcommon_english%2Ffiledown.php%3Ftid%3Dboard_dataroom2012_3%26ono%3D11%26n%3D1&usg=AOvVaw2eIuXWW8IHRtm_-Fduw4Vy		requirements for removal and disposal by the Contractor shall be stated. (JC18) JC18: Is there any possibility of existing of Hazardous Substances in the Works? NK: Existing of asbestos is mentioned for example in 1.22.12. Bangladesh seems there are still asbestos as reported below. Asbestos : Country Profile BANGLADESH http://www.google.co.jp/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=2ahUKEwje-qDjlq3pAhVGZt4KHecYBggQFjAAegQIARAB&url=http%3A%2F%2Fwww.krcard.org%2Fcommon_english%2Ffiledown.php%3Ftid%3Dboard_dataroom2012_3%26ono%3D11%26n%3D1&usg=AOvVaw2eIuXWW8IHRtm_-Fduw4Vy *Yes, there is a possibility of existing Hazardous Substances being encountered on JICA funded works particularly on the many projects which require demolition or alteration of existing buildings and structures.* *Upgrading of water treatment facilities can involve contact with chlorine and other chemicals.* *I do not agree that the following corrected phrase should be deleted:* After Site survey and investigation has been carried out by the Executing Agency, if it is …..” *I suggest that it is essential that the Executing Agency (actually their consultant) should always be aware of the possibility of encountering Hazardous Substances in existing buildings and on existing services and as such MUST survey likely buildings during the design stage to check this out.* *It is important that the Contractor is given full information as if not discovered during the design stage, the later discovery will have significant and negative effects upon time, cost and safety.* NK6/2: agreed.		Employer’s requirements for removal and disposal by the Contractor shall be stated. If the existence of such Hazardous Substances becomes clear only during the execution of the Work, but not before base date, such Hazardous Substances shall be similarly removed and disposed by the Contractor with reasonable time extension and additional cost toward the Contractor.
1.24 Accident Response Plan	Although the Contract places obligations upon the Contractor under GC6.7 [Health and Safety], the Particular Safety Specification shall include a listing and description of any particular services and facilities that the Contractor is required to provide at the Site in addition to those already described in the Conditions of Contract. This is particularly relevant where the Site is located at an excessive distance from urban areas and/or where there is a lack of immediate availability of medical facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor’s Personnel and Employer’s Personnel and all other persons who are entitled to be on the Site and other places (if any) where the Works are being executed.	1.24 Accident Response Plan	Although the Contract places obligations upon the Contractor under GC6.7 [Health and Safety], the Particular Safety Specification shall include a listing and description of any particular services and facilities that the Contractor is required to provide at the Site in addition to those already described in the Conditions of Contract. This is particularly relevant where the Site is located at an excessive distance from urban areas and/or where there is a lack of immediate availability of medical facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are	1.24 Accident Response Plan	Although the Contract places obligations upon the Contractor under GC6.7 [Health and Safety], the Particular Safety Specification shall include a listing and description of any particular services and facilities that the Contractor is required to provide at the Site in addition to those already described in the *Conditions of* Contract.

コメントの追加 [伊藤18]: I misunderstood your intention. We had deleted “After following Site survey….” because we thought that it “Site survey carried out by the Contractor” during the execution stage.

	The circumstances shall be investigated by Executing Agencies and their consultants during the design stage and full requirements shall be clearly described in the Bidding Documents. NK: There are same phrase of “described in the Contract”. May it be modified? Please let me consider later, this is still very much an early draft, see also above change. Normally it would be in the Bidding documents so that the bidder can price for it. Such additional facilities at the Site could for example include: (1) Enhanced medical staff with qualified doctor(s). (2) Enhanced first aid and treatment facilities and staff. (3) Enhanced medical equipment, medical supplies, medicines and drugs. (4) Additional treatment and recovery rooms. (5) An equipped ambulance based at the Site with qualified driver and attenders. (6) Where transfer time by road can exceed one (1) hour, emergency air-ambulance evacuation services, shall also be considered in addition to the above.		necessary to fully protect all Contractor’s Personnel and Employer’s Personnel and all other persons who are entitled to be on the Site. ~~and other places (if any) where the Works are being executed.~~ *Please refer to my earlier comments in Chapter 1, JSSS 1.2.2 (6).* *“Site” can be changed as above; I suggest that the reference to other persons in this instance should remain.* The circumstances shall be investigated by Executing Agencies ~~and their consultants~~ during the design stage and full requirements shall be clearly described in the Bidding Documents. NK: There are same phrase of “described in the Contract”. May it be modified? Please let me consider later, this is still very much an early draft, see also above change. Normally it would be in the Bidding documents so that the bidder can price for it. *I think that this should remain as it is. It is important that this is described at Bid Stage so that the Contractor is then aware and can price for this in his Bid.* *The Bidding Document will form a part of the subsequent Contract anyway.* Such additional facilities at the Site could for example include: (1) Enhanced medical staff with qualified doctor(s). (2) Enhanced first aid and treatment facilities and staff. (3) Enhanced medical equipment, medical supplies, medicines and drugs. (4) Additional treatment and recovery rooms. (5) An equipped ambulance based at the Site with qualified driver and attenders. (6) Where transfer time by road can exceed one (1) hour, emergency air-ambulance evacuation services, shall also be considered in addition to the above. NK: One hour mentioned above seems short as ODA project sites such as Sondu/Miriu projects is almost one hour car drive to hospital at Kisumu. We propose to mention as follows: Where transfer time by road can exceed required time for major trauma injuries from the Site to trauma centre, … We referred to the following: https://en.wikipedia.org/wiki/Air_medical_services (Japanese only: ドクターヘリ出動基準) https://www.hemnet.jp/mt-img/101112pdf04.pdf		This is particularly relevant where the Site is located at an excessive distance from urban areas and/or where there is a lack of immediate availability of medical facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor’s Personnel and Employer’s Personnel and all other persons who are entitled to be on the Site. ~~–~~ and other places (if any) where the Works are being executed. The circumstances shall be investigated by Executing Agencies during the design stage and full requirements shall be clearly described in the Bidding Documents. Such additional facilities at the Site could for example include: (1) Enhanced medical staff with qualified doctor(s). (2) Enhanced first aid and treatment facilities and staff. (3) Enhanced medical equipment, medical supplies, medicines and drugs. (4) Additional treatment and recovery rooms. (5) An equipped ambulance based at the Site with qualified driver and attenders. (6) Where transfer time by road can exceed required time for major trauma injuries from the Site to trauma treatment centre, emergency air-ambulance evacuation services~~,~~ shall also be considered in addition to the above.

コメントの追加 [伊藤19]: I think your earlier comment says “Other places may be specified in the Contract as forming part of the Site such as offsite storage areas provided by the Employer……”

However, GC4.13 say “The Contractor shall obtain, at his risk and cost, any additional rights of way or facilities outside the Site which he may require for the purposes of the Works.” which means the Contractor has the possibility to work in places other than the Site. There are actually many cases in which the Employer provides only insufficient working areas and the Contractor need to find some by their own. In such cases, the Contractor shall be required to take all the safety measures in such places as in the Site.

The wording we added (i.e. “and other places (if any) where the Works are being executed.) is in that sense and completely in accordance with GC.

コメントの追加 [YM27]: Do we say “required time for injury”?

	(7) Above available 7 days per week, 24 hours per day or during the normal working hours stated in the Contract Data, etc. The Particular Safety Specification shall state whether the medical, first aid and related services and facilities at the Site are to be available for during the normal working hours stated in the Contract or for any longer times. If any facilities as required under the Contract or additional facilities as required by JSSS are not required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking Over Certificate then this shall be clearly specified in the Particular Safety Specification, such items shall be listed with quantities and fully specified, otherwise all such facilities shall remain the property of the Contractor and shall be removed on or before the issue of the Taking Over Certificate. (JC19) JC19: It is considered not necessary to specify as default the safety facility will be taken over by the Employer. The sentence after otherwise seems strange because there are some facilities necessary for repair works during DNP. The Particular Safety Specification shall also state whether the medical, first aid and related services and facilities at the Site for accidental injuries (or more) shall also be made available and whether free of charge or not to any accompanying family members of the Contractor's Personnel, the Employer's Personnel and the family members of any other persons who are entitled to be on the Site and other places (if any) where the Works are being executed.		(7) Above available 7 days per week, 24 hours per day or during the normal working hours stated in the Contract Data, etc. The Particular Safety Specification shall state whether the medical, first aid and related services and facilities at the Site are to be available for during the normal working hours stated in the Contract or for any longer times. If any facilities as required under the Contract or additional facilities as required by JSSS are not required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking Over Certificate then this shall be clearly specified in the Particular Safety Specification. All such facilities shall be described and fully specified. If any facilities are to be handed to the Employer then any related requirements for replacement, repair or renovation shall be described. (JC19) JC19: It is considered not necessary to specify as default the safety facility will be taken over by the Employer. The sentence after otherwise seems strange because there are some facilities necessary for repair works during DNP. *I believe it is essential that the PSSS shall clearly state if any of the safety facilities are to be handed over to the Employer upon taking over of the Works. These are temporary facilities and as such remain as the Contractor's property.* *If they are to be handed over to the Employer, they actually are (or become) permanent facilities which should be designed by the Employer. Drawings should be provided at Bid stage and full specifications provided including specifications for any required renovation.* *This is not stated above as a default but it is a frequently encountered problem when requested for the first time at the time of taking over by an employer.* *Any facilities remaining at taking over, unless specially stated to remain in the PSS shall be removed (or relocated) during the DNP or with alternative minimal facilities provided by the Contractor for his own personnel at his own cost.* The Particular Safety Specification shall also state whether the medical, first aid and related services and facilities at the Site for accidental injuries (or more) shall also be made available and whether free of charge or not to any accompanying family members of the Contractor's Personnel, the Employer's		(7) Above available 7 days per week, 24 hours per day or during the normal working hours stated in the Contract Data, etc. The Particular Safety Specification shall state whether the medical, first aid and related services and facilities at the Site are to be available for during the normal working hours stated in the Contract or for any longer times. If any facilities as required under the Contract or additional facilities as required by JSSS are not required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking Over Certificate then this shall be clearly specified in the Particular Safety Specification. All such facilities shall be described and fully specified. If any facilities are to be handed to the Employer then any related requirements for replacement, repair or renovation shall be described.

	In addition to stating as above, if there is a requirement for such additional facilities, appropriate pay items shall be included for each of the above in Section IV. Bidding Forms, Bill of Quantities, Bill No. 1: General Items, with unit for provision of facilities shown as "Sum" and unit rate/quantity for provision being shown as "month". Quantity in "months" shall be of the required period for provision which will usually be the Time for Completion and any required time during the Defects Notification Period.		Personnel and the family members of any other persons who are entitled to be on the Site and other places (if any) where the Works are being executed. ~~Separate pay items shall be included in the Bill of Quantities to allow pricing of the required services and facilities under this clause with separate lump sum items given for mobilisation and removal and monthly rate items given for ongoing provision and maintenance.~~ ~~Quantity in months, shall be of the required period for provision which usually will not exceed the Time for Completion.~~ ~~Any services required during the Defects Notification Period or during the completion of outstanding work and remedying defects shall usually be at the Contractor's own cost.~~ *The above is transferred to 3. BILL OF QUANTITIES on the last page of this guide.* NK: Agreed.		The Particular Safety Specification shall also state whether the medical, first aid and related services and facilities at the Site for accidental injuries (or more) shall also be made available and whether free of charge or not to any accompanying family members of the Contractor's Personnel, the Employer's Personnel and the family members of any other persons who are entitled to be on the Site and other places (if any) where the Works are being executed.
1.26 Emergency Response Plan	In locations where there is a risk of flooding, earthquake, volcanic or similar activity, the Contractor is required to take measures under JSSS 1.27 for basic emergency response. If t~~T~~he Employer ~~may~~ requires additional measures, ~~and if so~~ these shall be stated in the Particular Safety Specification. These may include for example a requirement of the Contractor to establish, train and maintain a specialist team at the Site to assist in the event of an emergency and the provision of specialist equipment. (JC20) JC20: What is supposed by the expression " assist in the event of…."? In case of emergency like earthquake or volcanic activities, the Contractor cannot do a lot of things, but stop working and evacuating. We are afraid that with this drafting, the Contractor would be required to take "excessive" actions (e.g. firefighting at the time of volcanic activities???). How is the nuance of this drafting??? NK: JICA cannot understand what meaning of "assist" is and to whom the Contractor assists. I wonder if you are assuming that the Employer may request the Contractor to assist the Employer or community around the Site in emergency. In such cases, the Particular Safety Specification shall specify whether this is required, details of personnel and equipment to be provided so that the Contractor is made fully aware and is able to assess the extent, risk and cost of the requirements. An appropriate pay item shall be included for this in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items, with unit for provision of facilities shown as "Sum" and unit rate/quantity for provision being shown as "month".	1.26 Emergency Response Plan	In locations where there is a risk of flooding, earthquake, volcanic or similar activity, the Contractor is required to take measures under JSSS 1.27 for basic emergency response. If t~~T~~he Employer ~~may~~ requires additional measures, ~~and if so~~ these shall be stated in the Particular Safety Specification. These may include for example a requirement of the Contractor to establish, train and maintain a specialist team at the Site to assist in the event of an emergency and the provision of specialist equipment. (JC20) JC20: What is supposed by the expression " assist in the event of…."? In case of emergency like earthquake or volcanic activities, the Contractor cannot do a lot of things, but stop working and evacuating. We are afraid that with this drafting, the Contractor would be required to take "excessive" actions (e.g. firefighting at the time of volcanic activities???). How is the nuance of this drafting??? NK: JICA cannot understand what meaning of "assist" is and to whom the Contractor assists. I wonder if you are assuming that the Employer may request the Contractor to assist the Employer or community around the Site in emergency. In such cases, the Particular Safety Specification shall specify whether this is required, details of personnel and equipment to be provided so that the Contractor is made fully aware and is able to assess the extent, risk and cost of the requirements. An appropriate pay item shall be included for this in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items, with unit for provision of facilities	~~1.26 Emergency Response Plan~~	

コメントの追加 [伊藤28]: 結果としてこの PSS は削除されていますが、JSSS の該当部分を見る限りは、特にここで何かを記述しておく必要はないように思える。

			shown as “Sum” and unit rate/quantity for provision being shown as “month”. *The above is transferred to 3. BILL OF QUANTITIES on the last page of this guide.* *Please refer to Clause 1.10 of your original Chapter 1 draft and my requests for you to explain your exact requirement. This clause stated:* *“The Contractor shall prepare an emergency response plan as a part of the Health and Safety Plan (or the Particular Health and Safety Plans as necessary)* ***in order to promptly and appropriately respond to natural disasters, fires, and other emergencies that may occur during construction.”*** *I still do not understand exactly what is required.* *My comment on your document on 16/7/19 stated as follows:* *“NK please note:* *Natural disasters include typhoons, earthquakes etc. these are GC19 Force Majeure situations for which the contractor is not responsible for making any such “response”.* *NK what is the actual extent of the Contractor’s “response”? What manpower and equipment is to provide? How can this be predicted and estimated?* *What about the Employer’s and Engineer’s own plans and what about the availability of the rescue services etc. in the Country?* *These arrangements appear to be excessive.* *Can we please discuss and consider this further to understand the purpose and intention.* *We have edited the following to make it readable (not the above paragraph yet) but do not agree fully with the content. “* *I have since explained that the Contractor has no obligation to plan for or to “respond to natural disasters, fires, and other emergencies that may occur during construction.”* *Please also refer to my recent comments and queries against JSSS 1.26 which include:* *“JSSS cannot specify what other measures the Contractor is to take after a Force majeure event (which I guess your emergency plan is trying to cover) as these events and any counter measures cannot be predicted.* *In order to move the document forward, I had assumed in July 2019 that response services by the contractor, can only include a call list, training of response teams and perhaps the provision of general assistance from available resources hence the very loose drafting of this clause. I have also explained that need will vary on country to country basis with some countries having no such requirement.* *However, as I am now being questioned on my interpretation of your clearly inadequate draft, and the confusing manner in which this clause is evolving, I will*		

1.29 Project Safety Committee	*(On large Projects with multiple contract packages and contractors)* The Particular Safety Specification shall state if a Project Safety Committee is to be established for the Project and describe any further requirements.
1.30 Health and Safety Coordination with Other Contractors, refer also to GC 2.3 [*Employer's Personnel*]	The Particular Safety Specification shall describe the individual scope of Works for any other contractors to be employed by the Employer on the Site and where possible identify them by name. Also list any legally constituted public authorities who may be employed in the execution on or near the Site of any work not included in the Contract, and specify scope, working locations, access and timing as far as possible.
1.36 Health Matters	Although the Contract places obligations upon the Contractor under GC6.7 [*Health and Safety*], the Particular Safety Specification should include a listing and description of any particular services and facilities that the Contractor is required to provide at the Site for health control in addition to those already described in the Contract. The listing should also include furniture and equipment for rest stations, restroom, dining facilities, canteens, sanitary facilities, recreational facilities, shower facilities, changing rooms and the like together with a description of any requirements for use and for example whether facilities can be used by the Employer's Personnel and their families. This is particularly relevant where the Site is situated some distance away from urban areas and/or where there is a lack of immediate availability of suitable

	refrain from making further revision of this User Guide clause until after I have received and reviewed your final updated draft of JSSS 1.26. *In re-drafting 1.26. please can you describe exactly what scope of work you are requiring the Contractor to perform in the event of an earthquake, hurricane, typhoon or volcanic activity, so that I can edit this if necessary.* NK6/2: We have understood the background of the clauses 1.26. I checked our Japanese JSSS. Because we cannot find any particular requirement by the Employer, we delete "Unless otherwise specified in the Particular Safety Specification (PSS)" in 1.26.5 but leave "the Contractor shall prepare an Emergency Response Plan as a part of the Safety Plan." Nk6/2 In this relation, the above PSS for 1.26 is deleted.
1.29 Project Safety Committee	On large Projects with multiple contract packages, consultants and contractors, the Executing Agency may consider that an overall Project Safety Committee should be established to manage and coordinate all of the various contracts comprised in the Project. If so required, this shall be stated in the Particular Safety Specification together with a description of the requirements. *Suggestion for improved drafting* NK: Agreed.
1.30 Health and Safety Coordination with Other Contractors, refer also to GC 2.3 [*Employer's Personnel*]	The Particular Safety Specification shall describe the scope of work of any other contractors to be employed by the Employer on the Site and where possible identify them by name. The Particular Safety Specification shall also describe the scope of work of any legally constituted public authorities who may be employed by either the Employer or by the Contractor to execute work on or near the Site and identify them by name. NK6/2: Agreed.
1.36 Health Matters	Although the Contract places obligations upon the Contractor under GC6.7 [*Health and Safety*], the Particular Safety Specification should include a listing and description of any particular services and facilities that the Contractor is required to provide at the Site for health control in addition to those already described in the Contract. The listing should also include furniture and equipment for rest stations, restroom, dining facilities, canteens, sanitary facilities, recreational facilities, shower facilities, changing rooms and the like together with a description of any requirements

1.29 Project Safety Committee	On large Projects with multiple contract packages, ~~consultants and contractors,~~ the Executing Agency may consider that an overall Project Safety Committee should be established to manage and coordinate all of the various contracts comprised in the Project. ~~If so required, this shall be stated in the Particular Safety Specification together with a description of the requirements.~~ The Executing Agency shall specify whether the the Project Safety Committee will be established or not
1.30 Health and Safety Coordination with Other Contractors, refer also to GC 2.3 [*Employer's Personnel*]	The Particular Safety Specification shall describe the scope of work of any other contractors to be employed by the Employer on the Site and where possible identify them by name. The Particular Safety Specification shall also describe the scope of work of any legally constituted public authorities who may be employed by either the Employer or by the Contractor to execute work on or near the Site and identify them by name.
1.36 Health Matters	Although the Contract places obligations upon the Contractor under GC6.7 [*Health and Safety*], the Particular Safety Specification should include a

コメントの追加 [YM29]: 現在 JSSS1.0General の 1.29.1 の本文が以下の通り左欄と同様の規定です。本来 General の方にはこのようなガイダンス的な内容は必要ないはずなので、以下に示すとおり修正してください。

1.29.1.On larger Projects with multiple contract packages and contractors and unless otherwise stated in the Particular Safety Specification for those Projects, the Employer shall create a Project Safety Committee for the purpose of ensuring mutual understanding and effective implementation of health and safety management throughout the entire Project team.

【JSSS1.29.1 の修正案】

Is so specified in the Particular Safety Specification, the Employer shall create a Project Safety Committee (以下同文)

	medical facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel, to compensate for any lack of available services or facilities or lack of any local health authorities. The circumstances shall be investigated by Executing Agencies and their consultants during the design stage and full requirements shall be clearly described in the Bidding Documents. Consideration as to whether assignment of healthcare staff is required to be full time or part time (JC20) JC20: The sentence is incomplete. In addition to stating as above, if there is a requirement for such additional facilities, appropriate pay items shall be included for each of the above in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items, with unit for provision of facilities shown as "Sum" and unit rate/quantity being shown as "month". Quantity in "months" shall be of the required period for provision which will usually be the Time for Completion and any required time during the Defects Notification Period. If any facilities as required under the Contract or additional facilities as required by JSSS are not required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking Over Certificate then this shall be clearly specified in the Particular Safety Specification~~, *items shall be listed with quantities and fully specified, otherwise all such facilities shall remain the property of the Contractor and shall be removed on or before the issue of the Taking Over Certificate*~~.		for use and for example whether facilities can be used by the Employer's Personnel and their families. This is particularly relevant where the Site is situated some distance away from urban areas and/or where there is a lack of immediate availability of suitable medical facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel, to compensate for any lack of available services or facilities or lack of any local health authorities. The circumstances shall be investigated by Executing Agencies and their consultants during the design stage and full requirements shall be clearly described in the Bidding Documents. ~~Consideration as to whether assignment of healthcare staff is required to be full time or part time~~ (JC20) JC20: The sentence is incomplete. *Edited as follows:* The Executing Agency shall consider whether assignment of healthcare staff is required to be full time or part time and this shall be clearly stated in the Particular Safety Specification. ~~In addition to stating as above, if there is a requirement for such additional facilities, appropriate pay items shall be included for each of the above in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items, with unit for provision of facilities shown as "Sum" and unit rate/quantity being shown as "month".~~ ~~Quantity in "months" shall be of the required period for provision which will usually be the Time for Completion and any required time during the Defects Notification Period.~~ *The above is transferred to 3. BILL OF QUANTITIES on the last page of this guide.* If any facilities as required under the Contract or additional facilities as required by JSSS are not required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking Over Certificate then this shall be clearly specified in the Particular Safety Specification.~~, *items shall be listed with quantities and fully specified, otherwise all such facilities shall remain the property of the Contractor and shall be removed on or before the issue of the Taking Over Certificate*~~.		listing and description of any particular services and facilities that the Contractor is required to provide at the Site for health control in addition to those already described in the Contract. The listing should also include accommodation, furniture and equipment for rest stations, restroom, dining facilities, canteens, sanitary facilities, recreational facilities, shower facilities, changing rooms, religious facilitie if needed —and the like together with a description of any requirements for use and for example whether facilities can be used by the Employer's Personnel and their families. This is particularly relevant where the Site is situated some distance away from urban areas and/or where there is a lack of immediate availability of suitable medical facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel, to compensate for any lack of available services or facilities or lack of any local health authorities. The circumstances shall be investigated by Executing Agencies and their consultants during the design stage and full requirements shall be clearly described in the Bidding Documents. The Executing Agency shall consider whether assignment of healthcare staff is required to be full time or part time and this shall be clearly stated in the Particular Safety Specification. If any facilities as required under the Contract or additional facilities as required by JSSS are not required to continue during the Defects Notification Period or are to be handed to the Employer on issue

1.37 Design and Management of Temporary Works	As a standard requirement, the Particular Safety Specification shall require Bidders to comply with BS5975 (latest issue) or approved equivalent for the design and management of Temporary Works. If Bidders are NOT required to comply with BS5975, the Particular Safety Specification shall state this and also state that Bidders are to comply in any event with the specified requirements of JSSS 1.37 and submit full details in the Safety Plan.
~~1.38 User Training~~	~~The Particular Safety Specification shall state whether User Training of Employer's Personnel is required so that the Works or any part or Section thereof can be used, operated and maintained in a safe manner.~~ ~~If it is required, the Particular Safety Specification shall modify or add to the requirements of JSSS 1.38 [*User Training*] and state the precise requirements including details of required training, numbers of candidates and duration of training.~~ ~~This shall be determined by the scope and nature of the Works and the number of users, management staff, operators, maintenance staff who will be engaged upon the Works.~~ ~~The Particular Safety Specification shall state whether lessons will be full-time or part-time.~~ ~~The Contractor shall design syllabi to compliment the training courses and in addition to user training, syllabi shall include health and safety training to an international level of appreciation with a general introduction to OSHA and other international safety standards and regulations. The Contractor shall test candidates upon completion of their course, prepare~~

	For consistency with 1.24 Accident Response Plan, I suggest redrafting of the above deleted clauses as follows: The Particular Safety Specification shall state whether the services and facilities specified are to be available during the normal working hours stated in the Contract or for any longer times. If any facilities as required under the Contract or additional facilities as required by JSSS are required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking-Over Certificate then this shall be clearly specified in the Particular Safety Specification. All such facilities shall be described and fully specified. If any facilities are to be handed to the Employer, any requirements for replacement, repair or renovation shall be described. The Particular Safety Specification shall also state whether the services and facilities at the Site shall also be made available and whether free of charge or not, to any accompanying family members of the Contractor's Personnel, or to the Employer's Personnel or to the family members of any other persons who are entitled to be on the Site and other places (if any) where the Works are being executed. NK6/2: Agreed.
1.37 Design and Management of Temporary Works	As a standard requirement, the Particular Safety Specification shall require Bidders to comply with BS5975 (latest issue) or approved equivalent for the design and management of Temporary Works. If Bidders are NOT required to comply with BS5975, the Particular Safety Specification shall state this and also state that Bidders are to comply in any event with the specified requirements of JSSS 1.37 and submit full details in the Safety Plan.
~~1.38 User Training~~	*The draft clause has been deleted with the comment/query:* This must be relevant as guidance to the Employer. But not as Particular specification??? ~~The Particular Safety Specification shall state whether User Training of Employer's Personnel is required so that the Works or any part or Section thereof can be used, operated and maintained in a safe manner.~~ *I don't understand the comment; this User Guide is for the purpose of guiding the Employer with his drafting of the Bid documents.* *The originally drafted content, is the guidance.* *Permanent equipment (Plant) is a major component of most JICA projects and the purpose of JSSS 1.38*

	of the Taking Over Certificate then this shall be clearly specified in the Particular Safety Specification. The Particular Safety Specification shall state whether the services and facilities specified are to be available during the normal working hours stated in the Contract or for any longer times. If any facilities as required under the Contract or additional facilities as required by JSSS are required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking-Over Certificate then this shall be clearly specified in the Particular Safety Specification. All such facilities shall be described and fully specified. If any facilities are to be handed to the Employer, any requirements for replacement, repair or renovation shall be described. The Particular Safety Specification shall also state whether the services and facilities at the Site shall also be made available and whether free of charge or not, to any accompanying family members of the Contractor's Personnel, or to the Employer's Personnel or to the family members of any other persons who are entitled to be on the Site and other places (if any) where the Works are being executed.
1.37 Design and Management of Temporary Works	As a standard requirement, the Particular Safety Specification shall require the Contractor~~Bidders~~ to comply with BS5975 (latest issue) or approved equivalent for the design and management of Temporary Works. If the Contractor ~~Bidders~~ is~~are~~ NOT required to comply with BS5975, the Particular Safety Specification shall state this and also state that the Contractor ~~Bidders~~ is~~are~~ to comply in any event with the specified requirements of JSSS 1.37 and submit full details in the Safety Plan.

コメントの追加 [岡本30]: この部分で DNP 又はその後発注者が必要かどうかを記載しているので、2.2 "Particular Requirement"の記載は不要であり、
Default は"If any facilities …. as required by JSSS ARE required to continue during the Defects Notification Period"と考えます。

コメントの追加 [YM31]: この箇所のみならず、他の部分にも Bidders という単語が使われている場合には、書き換えをお願いします。

コメントの追加 [岡本32]: これだけでは読みにくいので BS5975 [Code of Practice for temporary works procedures and the permissible design of false work]のように Full Title を入れた方が良い。

コメントの追加 [伊藤20]: Yes, sometimes our comments were also confusing.

	~~and issue certificates of attendance and successful completion of each course.~~ ~~In addition to stating as above and if there is a requirement for such user training, appropriate pay items shall be included for each of the above in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items for:~~ ~~Assignment of teachers for user training~~ ~~Unit: man-month Quantity: Total estimated man-months~~ ~~Provision and use of Training Facilities: Sum~~ ~~If any Training Facilities are to be handed to the Employer or issued to candidates, then this shall be clearly specified in the Particular Safety Specification, items shall be listed with quantities and fully specified, otherwise all such Training Facilities shall remain the property of the Contractor and shall be removed on completion.~~		*was to make sure that the Bidding documents include a consistent and clear requirement for high level operator safety training for such Plant (commonly imported) that has been provided under the contract by foreign trainers. It is basically to ensure that all operators of this Plant are properly trained by the Contractor to ensure they can use it safely.* *Often this requirement is not specified properly and full training for safe use is not effectively provided.* ~~If it is required, the Particular Safety Specification shall modify or add to the requirements of JSSS 1.38 [*User Training*] and state the precise requirements including details of required training, numbers of candidates and duration of training.~~ ~~This shall be determined by the scope and nature of the Works and the number of users, management staff, operators, maintenance staff who will be engaged upon the Works.~~ ~~The Particular Safety Specification shall state whether lessons will be full-time or part-time.~~ ~~The Contractor shall design syllabi to compliment the training courses and in addition to user training, syllabi shall include health and safety training to an international level of appreciation with a general introduction to OSHA and other international safety standards and regulations. The Contractor shall test candidates upon completion of their course, prepare and issue certificates of attendance and successful completion of each course.~~ ~~In addition to stating as above and if there is a requirement for such user training, appropriate pay items shall be included for each of the above in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items for:~~ ~~Assignment of teachers for user training~~ ~~Unit: man-month Quantity: Total estimated man-months~~ ~~Provision and use of Training Facilities: Sum~~ ~~If any Training Facilities are to be handed to the Employer or issued to candidates, then this shall be clearly specified in the Particular Safety Specification, items shall be listed with quantities and fully specified, otherwise all such Training Facilities shall remain the property of the Contractor and shall be removed on completion.~~ NK6/2: We take a note MD's suggestion and agreed to delete the above.		
1.39 Unexploded Ordnance	If there is a possibility that any UXO may exist at the Site, then this shall be surveyed and investigated by the Employer before Bids are requested and the result of this investigation shall be clearly stated and full information including survey and investigation results shall be provided by the Employer in the Particular Safety Specification. Clearance of UXO shall be undertaken by the Employer as a condition precedent to commencement under GCC 8.1 [*Commencement of Works*], at the cost of the Employer and carried out by specialist	1.39 Unexploded Ordnance	If there is a possibility that any UXO may exist at the Site, then this shall be surveyed and investigated by the Executing Agency before Bids are requested and the result of this investigation shall be clearly stated and full information including survey and		

	government organisations, forces or contractor(s) that are appropriately and specifically qualified, skilled and experienced in the safe and environmentally acceptable removal and disposal of UXO, engaged directly by the Employer. Completion of clearance shall be evidenced through the issue by the Employer's specialist remover of a certificate of UXO clearance from the Site area. A copy of this certificate shall be provided to the Engineer and the Contractor. No work shall commence at the Site until the receipt of a by the Engineer and Contractor of a copy of this certificate. Should the Contractor encounter any UXO, after a clearance certificate has been issued in accordance with the above, he shall immediately stop all affected work at Site, clear the area of all Contractor's Personnel, Employer's Personnel and all other persons and notify the Engineer and relevant authorities. Unless otherwise agreed between Employer and Contractor, the Employer shall then make further arrangements for removal and disposal, then obtain and issue a further clearance certificate. Work shall resume in the affected areas after the Contractor has received a copy if the further clearance certificate together with any further instructions from the Engineer. (JC21) JC21: This must be relevant as guidance to the Employer. But not as Particular specification??? NK: I wonder how to specify this as guidance.		investigation results shall be provided by the Executing Agency in the Particular Safety Specification. Clearance of UXO shall be undertaken by the Executing Agency as a condition precedent to commencement under GCC 8.1 [*Commencement of Works*], by the agency's own arrangements and at their own cost. Clearance shall be carried out by specialist government organisations, forces or contractor(s) that are appropriately and specifically qualified, skilled and experienced in the safe and environmentally acceptable removal and disposal of UXO, engaged directly by the Executing Agency. Completion of clearance shall be evidenced through the issue by the Executing Agency's specialist remover of a certificate of UXO clearance from the Site area. A copy of this certificate shall be provided to the Engineer and the Contractor. No work shall commence in relevant areas of the Site until the receipt by the Engineer and Contractor of a copy of this certificate. Should the Contractor encounter any UXO, after a clearance certificate has been issued in accordance with the above, he shall immediately stop all affected work at Site, clear the affected area of all Contractor's Personnel, Employer's Personnel and all other persons and notify the Engineer and relevant authorities. Unless otherwise agreed between Employer and Contractor, the Executing Agency shall then make further arrangements for removal and disposal, then obtain and issue a further clearance certificate. Work shall resume in the affected areas after the Contractor has received a copy if the further clearance certificate together with any further instructions from the Engineer. (JC21) JC21: This must be relevant as guidance to the Employer. But not as Particular specification??? NK: I wonder how to specify this as guidance. *I don't understand the comment; this User Guide is for the purpose of guiding the Executing Agency with their drafting of the Bid documents.* *The originally drafted content is the guidance.* NK6/2: We agree to MD's reply and leave this as they are.		
		JSSS 2.1.1 Other Hazardous Substances	If there is a known possibility that any other Hazardous Substances may exist at the Site this shall be stated and full details provided of all likely hazards in the Particular Safety Specification. NK6/2: Agreed.	1.39 Unexploded Ordnance	If there is a possibility that any UXO may exist at the Site, then this shall be surveyed and investigated by the Executing Agency before Bids are requested and the result of this investigation shall be clearly stated and full information including survey and investigation results shall be provided by the Executing Agency in the Particular Safety Specification. Clearance of UXO shall be undertaken by the Executing Agency as a condition precedent to commencement under GCC 8.1 [*Commencement of Works*], by the agency's own arrangements and at their own cost. Clearance shall be carried out by specialist government organisations, forces or contractor(s) that are appropriately and specifically qualified, skilled and experienced in the safe and environmentally acceptable removal and disposal of UXO, engaged directly by the Executing Agency. Completion of clearance shall be evidenced through the issue by the Executing Agency's specialist remover of a certificate of UXO clearance from the Site area. A copy of this certificate shall be provided to the Engineer and the Contractor. No work shall commence in relevant areas of the Site until the receipt by the Engineer and Contractor of a copy of this certificate. Should the Contractor encounter any UXO, after a clearance certificate has been issued in accordance with the above, he shall immediately stop all affected work at Site, clear the affected area of all Contractor's Personnel, Employer's Personnel and all other persons and notify the Engineer and relevant authorities. Unless otherwise agreed ~~between Employer and~~with the Contractor, the Executing Agency shall then make further arrangements for removal and disposal, then obtain and issue a further clearance certificate. Work shall resume in the affected areas after the Contractor has received a copy if the further clearance certificate together with any further instructions from the Engineer.

コメントの追加 [YM33]: JSSS 本文とほぼ同じことが書いてあります。本文と Use Guide で適切な書き分けをしてください。

コメントの追加 [伊藤34]: A bit confusing to use both Employer and Executing Agency in one single sentence.

2.2 Risk Control Around the Site Site Perimeter Fencing:	The Particular Safety Specification shall describe the required Site Perimeter fencing showing the extent, dimensions, constructional details and specification, whether temporary or permanent. This shall also be shown on the Drawings. Requirements for permanent or temporary fencing or barriers within the Site shall be described and shown for example around areas where Dangerous Work is being carried out.

JSSS 2.1.2 Hazardous Substances - Asbestos	If there is a known possibility that asbestos in any of its various forms may exist at the Site (for example in existing buildings, structures or installations or which has been disposed of or buried at the Site then this shall be surveyed and investigated by the Executing Agency using a specialist qualified consultant/contractor before Bids are requested. The result of this investigation shall be clearly stated and full information including survey and investigation results shall be provided in the Particular Safety Specification. If possible, removal and disposal of this asbestos shall be undertaken by the Executing Agency before commencement of the Works by the agency's own arrangements and at their own cost. Removal and disposal shall be carried out by a specialist contractor that is appropriately and specifically qualified, skilled and experienced in the safe and environmentally acceptable removal and disposal of asbestos, engaged directly by the Executing Agency. Completion of removal and disposal shall be evidenced through the issue by the specialist contractor of a suitable certificate. A copy of this certificate shall be provided to the Engineer and the Contractor. No work shall commence at the Site until the receipt of a by the Engineer and Contractor of a copy of this certificate. Should the Contractor encounter any asbestos, after a clearance certificate has been issued in accordance with the above, he shall immediately stop all affected work at Site, clear the affected area of all Contractor's Personnel, Employer's Personnel and all other persons and notify the Engineer and relevant authorities. Unless otherwise agreed between Employer and Contractor, the Engineer shall issue an appropriate Variation under GC 13 [*Variations and Adjustments*]. If removal is to be undertaken by the Contractor, this shall be stated in the Particular Safety Specification with full details and drawings of the extent and requirements for removal and disposal. Separate pay items shall be included in the Bill of Quantities to allow pricing of the removal and disposal with separate lump sum items given for mobilisation and removal of resources and approximate quantities given for the area of asbestos. NK6/2: Agreed.
2.2 Risk Control Around the Site Site Perimeter Fencing:	The Particular Safety Specification shall describe the required Site Perimeter fencing showing the extent, dimensions, constructional details and specification,

JSSS 2.1.1(2) ~~Other Hazardous Substances~~ Workplace Exposure Limits (WELs)	If there is a known possibility that any other Hazardous Substances may exist at the Site this shall be stated and full details provided of all likely hazards in the Particular Safety Specification.
JSSS 2.1.2 Hazardous Substances - Asbestos	If there is a known possibility that asbestos in any of its various forms may exist at the Site (for example in existing buildings, structures or installations or which has been disposed of or buried at the Site then this shall be surveyed and investigated by the Executing Agency using a specialist qualified consultant/contractor before Bids are requested. The result of this investigation shall be clearly stated and full information including survey and investigation results shall be provided in the Particular Safety Specification. If possible, removal and disposal of this asbestos shall be undertaken by the Executing Agency before commencement of the Works by the agency's own arrangements and at their own cost. Removal and disposal shall be carried out by a specialist ~~contractor~~ that is appropriately and specifically qualified, skilled and experienced in the safe and environmentally acceptable removal and disposal of asbestos, engaged directly by the Executing Agency. Completion of removal and disposal shall be evidenced through the issue by the specialist ~~contractor~~ of a suitable certificate. A copy of this certificate shall be provided to the Engineer and the Contractor. No work shall commence at the Site until the receipt ~~of a~~ by the Engineer and Contractor of a copy of this certificate. Should the Contractor encounter any asbestos, after a clearance certificate has been issued in accordance with the above, he shall immediately stop all affected work at Site, clear the affected area of all Contractor's Personnel, Employer's Personnel and all other persons and notify the Engineer and relevant authorities. Unless otherwise agreed between Employer and Contractor, the Engineer shall issue an appropriate Variation under GC 13 [*Variations and Adjustments*]. If removal is to be undertaken by the Contractor, this shall be stated in the Particular Safety Specification with full details and drawings of the extent and requirements for removal and disposal.

書式変更: インデント：左： 12 mm, 行頭文字または番号を削除, 位置：水平方向： 1.36 字, 基準：段, 垂直方向：0 字, 基準：段落, 水平方向： 1.42 字, 折り返しあり

コメントの追加 [YM35]: 別紙 Comments to User Guide を参照。

コメントの追加 [YM36]: 2.1.1.(3)ではないでしょうか？

書式を変更: フォントの色：赤, 取り消し線

	Gates, barriers and other measures at Site entrances shall be described together with any arrangements for communications, lighting and power supply. Requirements for security at the Site entrance and also around the Site shall be described and whether this is to be provided by the Contractor or the Employer.
2.1 Work Environment Other Dangerous Work	If the scope of Works includes any other Dangerous Work, as defined in JSSS Annex 1.1 [*Definitions and Abbreviations*], this shall be stated and full details provided of all likely hazards in the Particular Safety Specification. For any work to be perform in Operational Areas, the time(s) and conditions of operation shall be described together with any restrictions on the Contractor's working methods, times and arrangements shall be further described in detail. The respective responsibilities for insurance, health and safety management, security, health and welfare facilities, etc., between the Employer and Contractor(s) shall be clearly described so that there is no doubt over what each party is to perform or provide. A copy of the Employer's working procedures, including their health and safety procedures shall be provided to Bidders for their study during the Bidding period.
2.8 Fire Prevention	Although the Contract places obligations upon the Contractor for care of the Works, the Particular Safety Specification should include a listing and description of any particular fire-fighting and rescue services and facilities that the Contractor is required to provide at the Site. (JC22) JC22: This request seems excessive to provide fire engine, fire brigade for 24 hours stan-by.

	whether temporary or permanent. This shall also be shown on the Drawings. Requirements for permanent or temporary fencing or barriers within the Site shall be described and shown for example around areas where Dangerous Work is being carried out. Gates, barriers and other measures at Site entrances shall be described together with any arrangements for communications, lighting and power supply. Requirements for security at the Site entrance and also around the Site shall be described and whether this is to be provided by the Contractor or the Employer.
JSSS 2.2.6 Community Relations	If the Contractor is required, to assist the Employer with maintaining community relations, for example conducting traffic safety and awareness activities for the local community, this shall be described in the Particular Safety Specification and full details of requirements shall be stated. NK6/2: Agreed.
JSSS 2.3.1 Dangerous Work	If there is a known possibility that any Dangerous Work will be necessary this shall be stated and full details provided of all likely hazards in the Particular Safety Specification. If the scope of Works includes any work to be performed in Operational Areas, then a list of such works and a full description of the nature and conditions of operations shall be included in the Particular Safety Specification. Any requirements and restrictions on the Contractor's working methods and times and any special access, safety or other arrangements shall be further described in detail. The respective responsibilities for insurance, health and safety management, security, health and welfare facilities, etc., between the Employer and Contractor(s) shall be clearly described so that there is no doubt over what each party is to perform or provide. A copy of the Employer's working procedures, including their health and safety procedures shall be provided to Bidders for their study during the Bidding period. NK6/2: Agreed.
2.8 Fire Prevention	Although the Contract places obligations upon the Contractor for care of the Works, the Particular Safety Specification should include a listing and description of any particular fire-fighting and rescue services and facilities that the Contractor is required to provide at the Site. (JC22) JC22: This request seems excessive to provide fire engine, fire brigade for 24 hours stan-by.

	Separate pay items shall be included in the Bill of Quantities to allow pricing of the removal and disposal with separate lump sum items given for mobilisation and removal of resources and approximate quantities given for the area of asbestos.
2.2 Risk Control Around the Site Working Area Perimeter~~Site Perimeter fencing~~:	The Particular Safety Specification shall describe the required Working Area Perimeter~~Site Perimeter fencing~~ showing the extent, dimensions, constructional details and specification, whether temporary or permanent. This shall also be shown on the Drawings. Requirements for permanent or temporary fencing or barriers within the Site shall be described and shown for example around areas where Dangerous Work is being carried out. Gates, barriers and other measures at Site entrances shall be described together with any arrangements for communications, lighting and power supply. Requirements for security at the Site entrance and also around the Site shall be described and whether ~~this is~~they are to be provided by the Contractor or the Employer.
JSSS 2.2.6 Community Relations	If the Contractor is required, to assist the Employer with maintaining community relations, for example conducting traffic safety and awareness activities for the local community, this shall be described in the Particular Safety Specification and full details of requirements shall be stated.
JSSS 2.3.1 Dangerous Work	If there is a known possibility that any Dangerous Work will be necessary this shall be stated and full details provided of all likely hazards in the Particular Safety Specification. If the scope of Works includes any work to be performed in Operational Areas, then a list of such works and a full description of the nature and conditions of operations shall be included in the Particular Safety Specification. Any requirements and restrictions on the Contractor's working methods and times and any special access, safety or other arrangements shall be further described in detail. The respective responsibilities for insurance, health and safety management, security, health and welfare facilities, etc., between the Employer and Contractor(s) shall be clearly described so that there is no doubt over what each party is to perform or provide. ~~A copy of the Employer's working procedures, including their health and safety procedures shall be~~

コメントの追加 [YM37]: JSSS2.2.1 のタイトルもこのように修正していたはずですので整合性をとってください。
(Secure の要否はご判断ください)

コメントの追加 [YM38]: JSSS2.3 は、prohibition of entry-dangerous work であって(dangerous work ではないので。Dangerous work は 1.22)、ここに記載の内容は、JSSS2.3.1 に記載されている内容と関係ありません。

Hazardous substance やその他、コントラクターの作業を制約するものがあるのである場合にそれを調べて Particular に規定すべきということであれば、より適切な JSSS の条項に紐づけてください(例えば 1.22)。より適切な JSSS の条項が見つからないのであれば、Use Guide の 2.1 の General のところに記述してください。

コメントの追加 [JICA39]: 別紙 Comments to User Guide を参照。

コメントの追加 [YM40]: insurance の内容は不要では。

	This is particularly relevant where the Site is situated some distance away from urban areas and/or where there is a lack of immediate availability of suitable fire-fighting and rescue facilities, or where such facilities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel, to compensate for any lack of available services or facilities or lack of any local health authorities. The circumstances shall be investigated by Executing Agencies and their consultants during the design stage and full requirements shall be clearly specified in the Particular Safety Specification. Such additional facilities at the Site could for example include: (1) An equipped fire engine based at the Site with qualified driver and crew selected from the workers at the Site. (2) Sufficient temporary water and power supply to maintain emergency use. (3) Additional PPE for the fire-fighting and rescue team. (4) Enhanced fire protection equipment and facilities around the Site.		*This is entirely my suggestion, please amend as you consider necessary.* *My thinking is influenced by the fact that whilst FIDIC confirms that the Contractor is responsible for the care of the Works (GC 17), and safety (GC 4.8 and 6.7) it does not specify example requirements for fire control such as are given for health and safety under GC 6.7* *GC 6.7 for example mentions "local health authorities" but does not mention "local fire-fighting authorities.* *I suppose that FIDIC like many other standard contracts, assumes that a public fire service will be available however this is definitely not the case on many JICA projects.* *Often the site (for example on hydro projects) is so far away from urban areas that any public fire service is of no value. Also and quite frequently such services are ill equipped for use on major JICA style projects.* *Much injury, death and damage will therefore occur because sufficient fire-fighting facilities are not provided by the Contractor at the site unless particularly specified. Reliance is placed upon insurance but this is compensation and not a safety feature.* *Many sites will require the provision of full fire-fighting facilities hence my suggested common basis draft in JSSS* This is particularly relevant where the Site is situated some distance away from urban areas and/or where there is a lack of immediate availability of suitable fire-fighting and rescue facilities, or where such facilities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel, to compensate for any lack of available services or facilities or lack of any local health authorities. The circumstances shall be investigated by Executing Agencies ~~and their consultants~~ during the design stage and full requirements shall be clearly specified in the Particular Safety Specification. Such additional facilities at the Site could for example include: (1) An equipped fire engine based at the Site with qualified driver and crew selected from the workers at the Site. (2) Sufficient temporary water and power supply to maintain emergency use.		~~provided to Bidders for their study during the Bidding period.~~ 2.8 Fire Prevention Although the Contract places obligations upon the Contractor for care of the Works, the Particular Safety Specification should include a listing and description of any particular fire-fighting and rescue services and facilities that the Contractor is required to provide at the Site. This is particularly relevant where the Site is situated some distance away from urban areas and/or where there is a lack of immediate availability of suitable fire-fighting and rescue facilities, or where such facilities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel, to compensate for any lack of available services or facilities or lack of any local health authorities.

コメントの追加 [YM41]: 今更ですが意味が分かりません。

コメントの追加 [JICA42]: 別紙 Comments to User Guide を参照

コメントの追加 [伊藤21]: Agree
何か追加で要求するならば書いておけということなのでよいでしょう。

コメントの追加 [K43]: Maybe not only health authority but also many others. Thus, "relevant authorities" is more suitable.

	(5) Above available 7 days per week, 24 hours per day or during the normal working hours stated in the Contract Data, etc. Where applicable, details shall be provided in the Particular Safety Specification for the selection, training and equipping of emergency fire-fighting teams selected from existing Contractor's Personnel at the Site, who in addition to their normal work, shall be called upon immediately in the event of any fire, to rescue any person(s) who may become trapped or injured or otherwise affected or incapacitated by fire and to provide suitable, specialist and appropriate first aid and medical treatment. Without limiting the Contractor's obligations, the Particular Safety Specification shall describe the particular scope of fire prevention services that are to be provided by the Contractor for the Works. An appropriate pay item shall be included for this in **Section IV. Bidding Forms, Bill of Quantities**, Bill No. 1: General Items, with unit for provision of facilities shown as "Sum" and unit rate/quantity for provision being shown as "month". If any facilities as required under the Contract or additional facilities as required by JSSS are not required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking Over Certificate then this shall be clearly specified in the Particular Safety Specification, items shall be listed with quantities and fully specified, otherwise all such facilities shall remain the property of the Contractor and shall be removed on or before the issue of the Taking Over Certificate.		(3) Additional PPE for the fire-fighting and rescue team. (4) Enhanced fire protection equipment and facilities around the Site. (5) Above available 7 days per week, 24 hours per day or during the normal working hours stated in the Contract Data, etc. Where applicable, details shall be provided in the Particular Safety Specification for the selection, training and equipping of emergency fire-fighting teams selected from existing Contractor's Personnel at the Site, who in addition to their normal work, shall be called upon immediately in the event of any fire, to rescue any person(s) who may become trapped or injured or otherwise affected or incapacitated by fire and to provide suitable, specialist and appropriate first aid and medical treatment. Without limiting the Contractor's obligations, the Particular Safety Specification shall describe the particular scope of fire prevention services that are to be provided by the Contractor for the Works. If any facilities as required under the Contract or additional facilities as required by JSSS are required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking-Over Certificate then this shall be clearly specified in the Particular Safety Specification. All such facilities shall be described and fully specified. If any facilities are to be handed to the Employer, any requirements for replacement, repair or renovation shall be described. ~~Separate pay items shall be included in the Bill of Quantities to allow pricing of the required services and facilities under this clause with separate lump sum items given for mobilisation and removal and monthly rate items given for ongoing provision and maintenance.~~ ~~The quantity in months, shall be of the required period for provision which usually will not exceed the Time for Completion.~~ ~~Any services required during the Defects Notification Period or during the completion of outstanding work and remedying defects shall usually be at the Contractor's own cost.~~ *The above is transferred to 3. BILL OF QUANTITIES on the last page of this guide.* NK6/2: Agreed.		The circumstances shall be investigated by Executing Agencies during the design stage and full requirements shall be clearly specified in the Particular Safety Specification. Such additional facilities at the Site could for example include: (1) An equipped fire engine based at the Site with qualified driver and crew selected from the workers at the Site. (2) Sufficient temporary water and power supply to maintain emergency use. (3) Additional PPE for the fire-fighting and rescue team. (4) Enhanced fire protection equipment and facilities around the Site. (5) Above available 7 days per week, 24 hours per day or during the normal working hours stated in the Contract Data, etc. Where applicable, details shall be provided in the Particular Safety Specification for the selection, training and equipping of emergency fire-fighting teams selected from existing Contractor's Personnel at the Site, who in addition to their normal work, shall be called upon immediately in the event of any fire, to rescue any person(s) who may become trapped or injured or otherwise affected or incapacitated by fire and to provide suitable, specialist and appropriate first aid and medical treatment. Without limiting the Contractor's obligations, the Particular Safety Specification shall describe the particular scope of fire prevention services that are to be provided by the Contractor for the Works. If any facilities as required under the Contract or additional facilities as required by JSSS are required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking-Over Certificate then this shall be clearly specified in the Particular Safety Specification. All such facilities shall be described and fully specified. If any facilities are to be handed to the Employer, any requirements for replacement, repair or renovation shall be described.
3. Existing Underground, Concealed and Overhead Services	The Particular Safety Specification shall describe the required extent of any work required in connection with any existing Underground, Concealed or Overhead Services, with details and specification and this shall also be shown on the Drawings.	3. Existing Underground, Concealed and Overhead Services	The Particular Safety Specification shall describe the required extent of any work required in connection with any existing Underground, Concealed or		

	If any such services are the property of the Employer, this shall be stated clearly and the route, size, purpose of each shall be described and shown. If services are to remain live and functional throughout the Time for Completion of the Works or if they are to be removed and if so by whom shall also be described. If any of these services are the property of a legally constituted public authority or a third party, this shall be stated clearly and the owner, route, size, purpose of each shall be described and shown. If it is to remain live and functional throughout the Time for Completion of the Works or if it is to be removed and if so by whom, (i.e. the authority or third party or the Contractor) shall also be described. The Particular Safety Specification shall also describe or include the procedures and requirements (including responsibility for insurance and safety procedures) of the authority or third party if the Contractor is to carry out the work.		Overhead Services, with details and specification and this shall also be shown on the Drawings. If any such services are the property of the Employer, this shall be stated clearly and the route, size, purpose of each shall be described and shown. If these services are to remain live and functional throughout the Time for Completion of the Works or if they are to be removed and if so by whom shall also be described. If any of these services are the property of a legally constituted public authority or a third party, this shall be stated clearly and the owner, route, size, purpose of each shall be described and shown. A copy of the regulations of the legally constituted public authority or third party shall be provided in the Particular Safety Specification or made available with the Bidding documents If services are to remain live and functional throughout the Time for Completion of the Works or if they are to be removed and if so by whom, (i.e. the authority or third party or the Contractor) shall also be described. The Particular Safety Specification shall also describe or include the procedures and requirements (including responsibility for insurance and safety procedures) of the authority or third party if the Contractor is to carry out the work. NK6/2: Agreed.		
		JSSS 4.7 Temporary Fuelling Facilities	If fuel storage and dispensing arrangements are existing at the Site and are available for the Contractor's temporary use upon the Works then this shall be stated in the Particular Safety Specification and the requirements for use shall be described. Otherwise, the Contractor shall design and construct temporary fuel storage and dispensing facilities at the Site for the use of Contractor's Equipment. If there are any restrictions upon the provision and use of such facilities, then these shall be described in the Particular Safety Specification. NK6/2: Agreed.		
		JSSS 6.1.1 Design and Provision of Temporary Works Generally	The following (formerly a part of 1.37) is inserted here following JICA comment in chapter 1 as follows: JC70: Understand. But, could you transfer 1.37.8 to User Guide for guidance for small project (including grant aid projects)? NK5/6: Will modify as commented. In accordance with JSSS 1.37 [*Design and Management of Temporary Works*], the Contractor is generally required to comply with the requirements		
				3. Existing Underground, Concealed and Overhead Services	The Particular Safety Specification shall describe the required extent of any work required in connection with any existing Underground, Concealed or Overhead Services, with details and specification and this shall also be shown on the Drawings. If any such services are the property of the Employer, this shall be stated clearly and the route, size, purpose of each shall be described and shown. If these services are to remain live and functional throughout the Time for Completion of the Works or if they are to be removed and if so by whom shall also be described. If any of these services are the property of a legally constituted public authority or a third party, this shall be stated clearly and the owner, route, size, purpose of each shall be described and shown. A copy of the regulations of the legally constituted public authority or third party shall be provided in the Particular Safety Specification or made available with the Bidding documents If services are to remain live and functional throughout the Time for Completion of the Works or if they are to be removed and if so by whom, (i.e. the authority or third party or the Contractor) shall also be described. The Particular Safety Specification shall also describe or include the procedures and requirements (including responsibility for insurance and safety procedures) of the authority or third party if the Contractor is to carry out the work.
				JSSS 4.7 Temporary Fuelling Facilities	If fuel storage and dispensing arrangements are existing at the Site and are available for the Contractor's temporary use upon the Works then this shall be stated in the Particular Safety Specification and the requirements for use shall be described. Otherwise, the Contractor shall design and construct temporary fuel storage and dispensing facilities at the Site for the use of Contractor's Equipment. If there are any restrictions upon the provision and use of

			of BS5975: Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework or an equivalent alternative standard. On exceptionally small projects or projects which do not demand the provision of complex temporary supporting or load bearing falsework and the like, then, subject to submitting justification with particular reasons acceptable to JICA, the following alternative requirements may apply and if so, the following shall be included in the Particular Safety Specification: *"Where the Contractor is not required to comply with BS5975 or an equivalent alternative, the Contractor shall demonstrate by description in the Safety Plan that he has effective arrangements in place for controlling risks arising from the design, selection of materials, components and equipment, use, management, dismantling and removal of Temporary Works including for example, by ensuring the following:* *(1) Appointment of appropriately qualified and experienced staff.* *(2) Preparation of adequate Temporary Works designs.* *(3) Independent internal or external checking of the Temporary Works Design.* *(4) Preparation of a Temporary Works register and records* *(5) Pre-erection inspection of all Temporary Works, including materials, components and equipment.* *(6) Control and supervision of the Temporary Works erection, safe use, maintenance and dismantling of the Temporary Works, including procedures to:* *(a) Check that the Temporary Works have been erected in accordance with the design and issue by the HSO of a suitable sign showing it as complete and safe to use; and* *(b) Confirm when the Permanent Works have attained adequate strength to allow dismantling of the Temporary Works and issue by the HSO of a suitable sign showing that it is ready for dismantling.* *In accordance with JSSS 1.18 [Proper Placement of Contractor's Personnel], the Contractor shall ensure that the design, erection, maintenance, dismantling and removal of Temporary Works, are all carried out by competent and experienced persons and in a controlled and closely supervised manner.*		such facilities, then these shall be described in the Particular Safety Specification.
				JSSS 6.1.1 Design and Provision of Temporary Works Generally	In accordance with JSSS 1.37 [Design and Management of Temporary Works], the Contractor is generally required to comply with the requirements of BS5975: Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework or an equivalent alternative standard. On exceptionally small projects or projects which do not demand the provision of complex temporary supporting or load bearing falsework and the like, then~~, subject to submitting justification with particular reasons acceptable to JICA~~, the following alternative requirements may apply and if so, the following shall be included in the Particular Safety Specification: *"~~Where the Contractor is not required to comply with BS5975 or an equivalent alternative, t~~The Contractor shall demonstrate by description in the Safety Plan that he has effective arrangements in place for controlling risks arising from the design, selection of materials, components and equipment, use, management, dismantling and removal of Temporary Works including for example, by ensuring the following:* *(1) Appointment of appropriately qualified and experienced staff.* *(2) Preparation of adequate Temporary Works designs.* *(3) Independent internal or external checking of the Temporary Works Design.* *(4) Preparation of a Temporary Works register and records* *(5) Pre-erection inspection of all Temporary Works, including materials, components and equipment.* *(6) Control and supervision of the Temporary Works erection, safe use, maintenance and dismantling of the Temporary Works, including procedures to:* *(a) Check that the Temporary Works have been erected in accordance with the design and issue by the HSO of a suitable*

			NK6/2: Agreed.		*sign showing it as complete and safe to use; and* *(b) Confirm when the Permanent Works have attained adequate strength to allow dismantling of the Temporary Works and issue by the HSO of a suitable sign showing that it is ready for dismantling.* *In accordance with JSSS 1.18 [Proper Placement of Contractor's Personnel], the Contractor shall ensure that the design, erection, maintenance, dismantling and removal of Temporary Works, are all carried out by competent and experienced persons and in a controlled and closely supervised manner."*
		JSSS 6.1.3 Monitoring Impact of Works on Other Properties	The Contractor is required under this clause of JSSS, to monitor the Temporary Works to demonstrate that they are performing safely, to the designed limits and for the intended purpose. The Contractor is further required under the same clause of JSSS *"to monitor any vibration, settlement and other potentially damaging effects arising out of the execution of the Works to ascertain if these are causing any adverse effect to ground, buildings, structures and other properties, paved areas, roads, footpaths, fences, railways, waterways, drainage, utilities or any other property on the Site or outside the Site (collectively referred to in this Section as "other properties") to ensure that no damage or weakening is caused to such other properties."* If there is a risk that the execution of the Works may cause any damage to any "other properties" (as referred to in JSSS 6.1.3) and if the Executing Agency considers that particular minimum requirements for monitoring equipment, locations and methods are helpful or necessary, then these shall be stated in the Particular Safety Specification and the requirements shall be described. The methods may include for example the inclusion of monitoring criteria to assist the Contractor in establishing his own procedures for monitoring to avoid any damage to other properties. If these particular minimum requirements are included, it is important also to state in the relevant clause in the Particular Safety Specification that the requirements are for assistance only and that they shall not in any way affect the Contractor's obligation to execute the Works without causing any damage to other properties. NK6/2: Agreed.	JSSS 6.1.3 Monitoring Impact of Works on Other Properties	The Contractor is required under this clause of JSSS, to monitor the Temporary Works to demonstrate that they are performing safely, to the designed limits and for the intended purpose. The Contractor is further required under the same clause of JSSS *"to monitor any vibration, settlement and other potentially damaging effects arising out of the execution of the Works to ascertain if these are causing any adverse effect to ground, buildings, structures and other properties, paved areas, roads, footpaths, fences, railways, waterways, drainage, utilities or any other property on the Site or outside the Site (collectively referred to in this Section as "other properties") to ensure that no damage or weakening is caused to such other properties."* If there is a risk that the execution of the Works may cause any damage to any "other properties" (as referred to in JSSS 6.1.3) and if the Executing Agency considers that particular minimum requirements for monitoring equipment, locations and methods are helpful or necessary, then these shall be stated in the Particular Safety Specification and the requirements shall be described. The methods may include for example the inclusion of monitoring criteria to assist the Contractor in establishing his own procedures for monitoring to avoid any damage to other properties. If these particular minimum requirements are included, it is important also to state in the relevant clause in the Particular Safety Specification that the requirements are for assistance only and that they shall not in any way affect the Contractor's obligation to execute the Works without causing any damage to other properties.
		JSSS 6.2 Earthwork Support	For monitoring requirements, refer to the above reference in this table to JSSS 6.1.3 [*Monitoring Impact of Works on Other Properties*].	JSSS 6.2 Earthwork Support	For monitoring requirements, refer to the above reference in this table to JSSS 6.1.3 [*Monitoring Impact of Works on Other Properties*].
		JSSS 6.3 Cofferdams	For monitoring requirements, refer to the above reference in this table to JSSS 6.1.3 [*Monitoring Impact of Works on Other Properties*].		
		JSSS 7.2 Manual or Machine Excavation	In accordance with JSSS 7.2, the Contractor shall be responsible for choosing manual or machine excavation, selecting types of Contractor's Equipment, types of Temporary Works, Earthwork Support, spoil removal, storage and handling, controlling ground and surface water, forming		

コメントの追加 [YM44]: なぜイタリック(斜体)にしているのでしょうか？その必要はない気がします。

コメントの追加 [K45]: This article is hard to understand.

コメントの追加 [伊藤46]: Excellent!
Please also see our comment on 6.1.3 (We suggest that it should be transferred somewhere in JSSS 2 since it relate not only the TW but also PW.

			embankments and cuttings and the like, in conformity with GC 4.10. If there are any known and specific requirements or restrictions to be placed upon the Contractor for methods of excavation, types of equipment, Temporary Works Earthwork Support, spoil removal, storage and handling, controlling ground and surface water, forming embankments and cuttings and the like. Then this shall be stated in the Particular Safety Specification and the requirements shall be described.		
		JSSS 7.5.3 Excavation Works	For monitoring requirements, refer to the above reference in this table to JSSS 6.1.3 [*Monitoring Impact of Works on Other Properties*].		
		JSSS 7.6 Excavation by Blasting	If the scope of Works includes Blasting Works for tunnelling which is presently not included in the scope of JSSS, full requirements shall be specified in the Particular Safety Specification. If Blasting Works are allowable or are not allowable then this shall be stated in the Particular Safety Specification and any requirements and restrictions shall be described. If Blasting Works are allowable, then the Particular Safety Specification shall state if electric detonators can be used and the requirements shall be described. For monitoring requirements, refer to the above reference in this table to JSSS 6.1.3 [*Monitoring Impact of Works on Other Properties*].		
		JSSS 8.1.1 Foundation Piling	For monitoring requirements, refer to the above reference in this table to JSSS 6.1.3 [*Monitoring Impact of Works on Other Properties*].		
		JSSS 10.4.2 Diving Workboats	If the scope of Works includes Diving Works, and if there are any requirements and restrictions then these shall be described in the Particular Safety Specification. If there is a decompression chamber or medical support facilities existing at or near to the diving site and is available for the use of the Contractor then this shall be stated and the type, specification and capacity shall be described together with any requirements and restrictions for use. If a separate rescue tender is required to be provided and moored alongside the workboat for assisting with recovery of Divers who are in difficulty or have		

JSSS 6.3 Cofferdams	For monitoring requirements, refer to the above reference in this table to JSSS 6.1.3 [*Monitoring Impact of Works on Other Properties*].
JSSS 7.2 Manual or Machine Excavation	In accordance with JSSS 7.2, the Contractor shall be responsible for choosing manual or machine excavation, selecting types of Contractor's Equipment, types of Temporary Works, Earthwork Support, spoil removal, storage and handling, controlling ground and surface water, forming embankments and cuttings and the like~~, in conformity with GC 4.10~~. If there are any known and specific requirements or restrictions to be placed upon the Contractor for methods of excavation, types of equipment, Temporary Works Earthwork Support, spoil removal, storage and handling, controlling ground and surface water, forming embankments and cuttings and the like. Then this shall be stated in the Particular Safety Specification and the requirements shall be described.
JSSS 7.5.3 Excavation Works	For monitoring requirements, refer to the above reference in this table to JSSS 6.1.3 [*Monitoring Impact of Works on Other Properties*].
JSSS 7.6 Excavation by Blasting	If the scope of Works includes Blasting Works for tunnelling which is presently not included in the scope of JSSS, full requirements shall be specified in the Particular Safety Specification. If Blasting Works ~~are allowable or~~ are not allowable then this shall be stated in the Particular Safety Specification and any requirements and restrictions shall be described. ~~If Blasting Works are allowable, then the Particular Safety Specification shall state if electric detonators can be used and the requirements shall be described.~~ For monitoring requirements, refer to the above reference in this table to JSSS 6.1.3 [*Monitoring Impact of Works on Other Properties*].
JSSS 8.1.1 Foundation Piling	For monitoring requirements, refer to the above reference in this table to JSSS 6.1.3 [*Monitoring Impact of Works on Other Properties*].

コメントの追加 [伊藤47]: ここで GC4.10 をあえて引用する必要もないような気がする。
Taking account of the conditions of the Site and other places (if any) where the Works are being executed とでもするか？

コメントの追加 [YM48]: Incomplete sentence

GC 6.6 Facilities for Staff and Labour	The Particular Safety Specification shall describe any necessary accommodation and welfare facilities that the Contractor is to provide for the Contractor's Personnel and whether such facilities or further facilities are also to be provided for the Employer's Personnel and others. The Particular Safety Specification shall describe the required scope, design, constructional details and specification, whether temporary or permanent and this shall also be shown on the Drawings. If such facilities are required, the Particular Safety Specification shall describe in detail: (1) Responsibility and scope of maintenance, repair and cleaning of such facilities as necessary to maintain them in a clean, habitable, hygienic and safe condition, including garbage removal and disposal, rodent and insect control and the like. (2) Responsibility for and scope of potable water supply, water and power supply, waste water and sewage drainage and treatment. (3) Whether such facilities are required to be provided during the Defects Notification Period (4) Whether such facilities are to be removed by the Contractor or are to be handed over to the Employer on issue of the Taking Over Certificate and if so in what condition. The extent of provision by the Contractor shall take due account of the nature and location of the Site and the condition of access thereto, with a higher range and standard of facilities being provided in remote locations to promote good health, hygiene, comfort, welfare and safety of all users and occupants.
Other Items of Chapter 1 to review and include other Chapters of JSSS to review and incorporate	

Checklist still under consideration.

	drifted away from position then this shall be stated and full requirements shall be described. If there any special requirements for communications with the Dive Team, these shall also be described. NK6/2: Agreed.
GC 6.6 Facilities for Contractor's and Employer's Personnel	The Particular Safety Specification shall describe any necessary accommodation and welfare facilities that the Contractor is to provide for the Contractor's Personnel and whether such facilities or further facilities are also to be provided for the Employer's Personnel and others. If any land area is available at the Site for such facilities this shall be stated and shown and any requirements and restrictions shall be described. The Particular Safety Specification shall describe the required scope, design, constructional details and specification, whether temporary or permanent and this shall also be shown on the Drawings. If such facilities are required, the Particular Safety Specification shall describe in detail: (1) Responsibility and scope of maintenance, repair and cleaning of such facilities as necessary to maintain them in a clean, habitable, hygienic and safe condition, including garbage removal and disposal, rodent and insect control and the like. (2) Responsibility for and scope of potable water supply, water and power supply, waste water and sewage drainage and treatment. (3) Whether such facilities are required to be provided during the Defects Notification Period (4) Whether such facilities are to be removed by the Contractor or are to be handed over to the Employer on issue of the Taking-Over Certificate and if so in what condition. The extent of provision by the Contractor shall take due account of the nature and location of the Site and the condition of access thereto, with a higher range and standard of facilities being provided in remote locations to promote good health, hygiene, comfort, welfare and safety of all users and occupants. NK6/2: Agreed.

JSSS 10.4.2 Diving Workboats	If the scope of Works includes Diving Works, and if there are any requirements and restrictions then these shall be described in the Particular Safety Specification. If there is a decompression chamber or medical support facilities existing at or near to the diving site and is available for the use of the Contractor then this shall be stated and the type, specification and capacity shall be described together with any requirements and restrictions for use. If a separate rescue tender is required to be provided and moored alongside the workboat for assisting with recovery of Divers who are in difficulty or have drifted away from position then this shall be stated and full requirements shall be described. If there any special requirements for communications with the Dive Team, these shall also be described.
GC 6.6 Facilities for Contractor's and Employer's Personnel	The Particular Safety Specification shall describe any necessary accommodation and welfare facilities that the Contractor is to provide for the Contractor's Personnel and whether such facilities or further facilities are also to be provided for the Employer's Personnel and others. If any land area is available at the Site for such facilities this shall be stated and shown and any requirements and restrictions shall be described. The Particular Safety Specification shall describe the required scope, design, constructional details and specification, whether temporary or permanent and this shall also be shown on the Drawings. If such facilities are required, the Particular Safety Specification shall describe in detail: (c) Responsibility and scope of maintenance, repair and cleaning of such facilities as necessary to maintain them in a clean, habitable, hygienic and safe condition, including garbage removal and disposal, rodent and insect control and the like. (d) Responsibility for and scope of potable water supply, water and power supply, waste water and sewage drainage and treatment. (e) Whether such facilities are required to be provided during the Defects Notification Period (f) Whether such facilities are to be removed by the Contractor or are to be handed over to the Employer on issue of the Taking-Over Certificate and if so in what condition.

コメントの追加 [K49]: It is sure that a word "tender" has a meaning of a small boat. However, it is more appropriate to replace "tender" with " boat".

コメントの追加 [K50]: Incomplete sentence

		The extent of provision by the Contractor shall take due account of the nature and location of the Site and the condition of access thereto, with a higher range and standard of facilities being provided in remote locations to promote good health, hygiene, comfort, welfare and safety of all users and occupants.

3. BILL OF QUANTITIE

3.1 Incorporation of JSSS Requirements

(1) The Bills of Quantities to be prepared by the Executing Agency for the purposes of the Bidding Documents, Section IV. Bidding Forms shall include separate pay items to cover the main component parts of JSSS.

(2) The Executing Agency shall prepare a Bill of Quantities in accordance with the JICA Standard Bidding Document in order:

(a) to provide the facility for the Contractor to include the cost of JSSS compliance in his Bid; and

(b) to provide a basis for the preparation of Statements as part of the Contractor's application for payment under GC 14 [*Contract Price and Payment*].

(c) The Project Safety Specification (including JSSS), and

(3) Appropriate pay items shall be included in Bill No. 1 - General Items, to cover the following general components of the Project Safety Specification, such as:

(a) Assignment of HSO with supporting staff and provision of safety management activities (JSSS 1.13)

(b) Skill Training (JSSS 1.21)

(c) Accident Response Facilities (JSSS 1.24)

(d) Emergency Response Plan (JSSS 1.26)

(e) Health Facilities (JSSS 1.36)

(f) Design and Management of Temporary Works (JSSS 1.37)

(g) Fire Prevention (JSSS 2.8)

(4) The Pay items for the above shall be separated into lump sum and monthly payment items in accordance with the following table:

Ref	Description	Establishment and removal of facilities (sum)	Provision of Services (month)
(a)	Assignment of HSO with supporting staff and provision of safety management activities		✔
(b)	~~Skill Training~~	~~✔~~	~~✔~~

3. BILL OF QUANTITIES

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(a) to provide the facility for the Contractor to include the cost of JSSS compliance in his Bid; and

(b) to provide a basis for the preparation of Statements as part of the Contractor's application for payment under GC 14 [*Contract Price and Payment*].

(c) to provide a base for implementation along with The Project Safety Specification (including JSSS), and

(3) Appropriate pay items shall be included in Bill No. 1 - General Items, to cover the following general components of the Project Safety Specification, such as:

(a) Assignment of HSO with supporting staff and provision of safety management activities (JSSS 1.13)

(b) Skill Training (JSSS 1.21)

(c) Accident Response Facilities (JSSS 1.24)

(d) Emergency Response Plan (JSSS 1.26)

(e) Health Facilities (JSSS 1.36)

(f) Design and Management of Temporary Works (JSSS 1.37)

(g) Fire Prevention (JSSS 2.8)

(4) The Pay items for the above shall be separated into lump sum and monthly payment items in accordance with the following table:

Ref	Description	Establishment and removal of facilities (sum)	Provision of Services (month)
(a)	Assignment of HSO with supporting staff and provision of safety management activities		✔

コメントの追加 [K51]: Add "to provide a base for implementation along with" in front of the line.

	NK please note that originally this was intended to be OJT provided by skilled and experienced foreign personnel who were also to be engaged actively upon the works. The costs would therefore have been minimal. However, the level of training has now been increased by JICA through the introduction of skilled trainers from JSSS 1.21 [Skill Training] significantly increasing the costs and also perhaps (it is not yet clear) requiring skill training for other as yet undefined workers. I do not agree with (nor fully understand) the intention and await your further instruction and redrafting of relevant clauses. *This will have an effect upon the price of these requirements.* NK6/2: As mentioned in 1.21 above, the skill training is the Contractor's obligation, therefore the Employer will not need to specify cost and also facilities to be taken in BQ.		
(c)	Accident Response Facilities	✔	✔
(d)	Emergency Response Plan *NK: I await confirmation of your requirements* NK6/2: As mentioned above 1.26.5 above, not required to specify (d).	?	?
(e)	Health Facilities	✔	✔
(f)	Design and Management of Temporary Works	✔	✔
(g)	Fire Prevention	✔	✔

Note: The above quantity (expressed in months) shall be of the required period for provision which usually will not exceed the Time for Completion. Any services required during the Defects Notification Period to oversee completion of outstanding work and remedying defects shall usually be at the Contractor's own cost.

(5) Appropriate pay items shall be included in other Bills of Quantities to with relevant quantities, unit rates and sums for other parts of JSSS according to the particular scope of the Works for example removal of known hazardous substances, Blasting Work and Diving Works.

Note to NK: this section is a preliminary draft which will require further coordination after JSSS and the foregoing Guide sections 1 and 2 have been completed.

NK6/2: Revised and agreed MD's proposal..

(b)	Accident Response Facilities	✔	✔
(c)	Health Facilities	✔	✔
(d)	Design and Management of Temporary Works	✔	✔
(e)	Fire Prevention	✔	✔

Note: The above quantity (expressed in months) shall be of the required period for provision which usually will not exceed the Time for Completion. Any services required during the Defects Notification Period to oversee completion of outstanding work and remedying defects shall usually be at the Contractor's own cost.

(5) Appropriate pay items shall be included in other Bills of Quantities to with relevant quantities, unit rates and sums for other parts of JSSS according to the particular scope of the Works for example removal of known hazardous substances, Blasting Work and Diving Works.

Note to NK: this section is a preliminary draft which will require further coordination after JSSS and the foregoing Guide sections 1 and 2 have been completed.

コメントの追加 [伊藤52]: この列のチェックの有無の意味が分かりませんでした

コメントの追加 [K53R52]: 私は何となく理解したつもりですので18日にご説明いたします。

コメントの追加 [K54]: ??

Additional comments to “2.2 Particular Requirements” in the User Guide

◎1.4.10

We have understood MD’s comments but still we are not agreeable with this wording. While the Contractor is relieved from a part of safety and health requirements in JSSS, he continues to be responsible for safety of his personnel or other persons when carrying out any (minor) outstanding work or remedying defect (See the note below). The Contractor would also be required to respect any safety and health requirements if so specified in Particular Safety Specification.

(Note)

Site perimeter fencing is only needed during Time for Completion. On the other hand, even during DNP, spotters are needed to control traffic and fall prevention measures are needed when repair work takes place at height.

Therefore, we have to clearly distinguish those two things mentioned above in the main text of JSSS (please also refer to the attached paper titled “Terminology in JSSS”. So, how about the following? Correct me if language quality is not good.

“If for any reason the Contractor continues to be required to provide safety and health measures described in JSSS during DNP, in particular those which are required explicitly only during Time for Completion, this shall be clearly stated in the Particular Safety Specification together with the reasons, scope and duration of such obligation. “.

◎2.1.1 Other Hazardous Substances

少し込み入っているので日本語で説明を付した上で、MD 氏に直接わかるよう英語で同様の趣旨を併記します。

ユーザーガイドのドラフトでは以下のような記述になっています。

If there is a known possibility that any other Hazardous Substances may exist at the Site this shall be stated and full details provided of all likely hazards in the Particular Safety Specification.

一方、JICA が JSSS2.1.1 に付したコメントでは MD 氏のドラフトを下記の様に修正したうえで、「ここで、ガイダンスとして HSE の表を参照するようにしてください。」としていました。

~~The Contractor shall comply with EH40/2005 Workplace Exposure Limits (third edition published 2018), issued by HSE, Table 1.~~ The Contractor shall monitor the dusts specified in the Particular Safety Specifications and take necessary measures so that the short term and long term exposure limits will not be exceeded.

(注)今回再確認していて、上記は以下のようにしておくことが適当であることに気が付きました。最終稿をご提出頂くときにご対応願います。
The Contractor shall monitor the dusts specified in the Particular Safety Specifications and take necessary measures so that the short term and long term exposure limits fixed in the Particular Safety Specifications for each of those dusts will not be exceeded.

この趣旨は MD 氏の原案ではコントラクターは HSE の表にあるすべての項目に対応しなければならないので不適切（建設業以外に対する項目もある）なので、その要求をいったん消した上で、参照する文献としてガイドに移しておこう、というものでした。
しかるにユーザーガイドでは HSE への言及がありません。以下の様に黄色網掛け部分を付け加えてください。

If there is a known possibility that any other Hazardous Substances may exist at the Site this shall be stated and full details provided of all likely hazards in the Particular Safety Specification. The Employer should refer to EH40/2005 Workplace Exposure Limits (third edition published 2018), issued by HSE, Table 1 if the Law of the Country is silent with respect to the exposure limits of those hazards.

あわせて JSSS2.1.1(2)のタイトルから Standards という言葉を削除してください。
さらに、JSSS2.1.1(4)は不要ではないでしょうか（もともと HSE の一部の表が添付されていて、それに対して Other と言っていましたが、同表が削除されるに至った今では(4)は不要）。

以下は MD 氏への説明です。
Some revisions are proposed to both of the User Guide and main text of JSSS 2.1.1 as follow:

Proposed Revision to JSSS 2.1.1

2.1.1 Hazardous Substances

Refer to the definition of Hazardous Substances in JSSS Annex 1.1 [*Definitions and Abbreviations*]. For the purposes of this definition, note that Hazardous Substances shall

include dust of any kind when present at a concentration in air equal to or greater than:

(a) 10 mg/m3 (8-hour TWA) of inhalable dust; or

(b) 4 mg/m3 (8-hour TWA) of respirable dust.

(TWA means Time weighted average.)

コメントの追加 [J1]: unchanged

(2) ~~Standards of~~ Workplace Exposure Limits (WELs)

コメントの追加 [J2]: The title should be changed.

The Contractor shall monitor the dusts specified in the Particular Safety Specifications and take necessary measures so that the short term and long term exposure limits fixed in the Particular Safety Specifications for each of those dusts will not be exceeded.

(3) Asbestos

(a) When required in the Contract, the Contractor shall take measures for asbestos in accordance with the Particular Safety Specification.

(b) When existence of asbestos is found in the Works, the Contractor shall report to the Engineer and take measures in accordance with the requirements of JSSS 1.19 [Hazardous Substances], and

(c) If so required in the Contract or by an instruction by the Engineer, the Contractor shall comply with L143 Approved Code of Practice and guidance, for Managing and Working with Asbestos (second edition published 2013), issued by HSE; for the controlled safe removal and disposal of asbestos.

コメントの追加 [J3]: unchanged.

~~(4) Other Hazardous Substances~~

~~The Contractor shall comply with relevant HSE regulations with regard to health and environmental management and control of any other Hazardous Substances either existing on the Site or used in the Works.~~

コメントの追加 [J4]: This part should be deleted.

(5) and (6) remain unchanged.

Proposed revision to the User Guide

Reference is to be made to "2.1.1 (2)", instead of "2.1.1". Also, the sentence highlighted in yellow should be added.

If there is a known possibility that any other Hazardous Substances may exist at the Site this shall be stated and full details provided of all likely hazards in the Particular Safety Specification. The Employer should refer to EH40/2005 Workplace Exposure Limits (third edition published 2018), issued by HSE, Table 1 if the Law of the Country

is silent with respect to the exposure limits of those hazards.

Justification of the proposed revision

By all of these revisions above, the Contractor will be required to monitor the dusts and respect the exposure limits fixed in the Particular Safety Specification, while the Employer will be encouraged to specify the dusts to be monitored together with the exposure limits to be respected. And HES will constitute a good reference when the Law is silent.

2.1.1 (4) should be deleted since "**OTHER** Hazardous Substances" means Hazardous Substances "other than" those provided in the table extracting HSE included in the original edition of JSSS 2.1.1. And such table had already been deleted.

▽参考既存の記述対象となっている章・節のリスト

JSSS 1.4.10 Continued Compliance with JSSS throughout the DNP
1.12 Health and Safety Officer at the Site (HSO)
1.21 Skill Training
1.22.7 Rescue teams and equipment
1.22.12 Hazardous Substances
1.24 Accident Response Plan
1.29 Project Safety Committee
1.30 Health and Safety Coordination with Other Contractors, refer also to GC 2.3 [*Employer's Personnel*]
1.36 Health Matters
1.37 Design and Management of Temporary Works
1.39 Unexploded Ordnance
2.1.1 Other Hazardous Substances
2.1.2 Hazardous Substances - Asbestos
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Terminology in JSSS

Following is JICA 's consideration on the way of use of some words, which are defined in FIDIC Conditions and frequently used in JSSS for NK/MD's consideration..

1. Site

   As we commented to 2.2 Particular Requirement in the User Guide (with respect to JSSS 1.24), the Contractor may obtain at his own risk additional land to use outside the Site (which is provided by the Employer). And the Contractor shall respect safety requirements wherever he works. From this point of view, "Site" used in JSSS should sometime s be replaced with "Site and other places (if any) where the Contractor intends to execute the Works".

   Therefore, as we commented to JSSS 1.2.2(6) last time, we have to do something. Three options are in our mind:

   1) Wherever needed, repeat "Site and other places (if any) where the Contractor intends to execute the Works". Disadvantage of this solution is simply being very long.
   2) Creating a defined term for "Site and other places (if any) where the Contractor intends to execute the Works".
   3) Add an interpretation on the Site somewhere in JSSS, for example, "*Unless otherwise stated in JSSS or the context is otherwise clear, "Site" used in JSSS shall be deemed to include any places other than the Site where the Contractor intends to execute the Works".* Disadvantage of this solution is that Site is defined in the GC and we may create confusion with this new interpretation.

2. Time for Completion

   "Time for Completion" is used in Chapter 1 and 2 of JSSS. We think the intention is to clearly distinguish Time for Completion and Defect Notification Period. However, as mentioned in our comment to 2.2 Particular Requirement in the User Guide (with respect to JSSS 1.4.10), the Contractor shall take many of the required safety measures during Defect Notification Period as required during Time for Completion.

   We, therefore, believe that "Time for Completion" currently used in JSSS should sometimes be replaced with "execution of the Contract". Here are an example for replacement and another to be maintained as it is:

1) JSSS 1.4.10: Unless otherwise specified in the Particular Safety Specification, the Contractor shall comply with the requirements of JSSS throughout the Time for Completion.
(Note: Spotters are needed to control traffic when repair during DNP takes place along the road. Fall prevention measures are needed when repair work takes place at height.
So, this should be replaced with "throughout execution of the Contract" or, as we commented last time, "throughout the Time for Completion and Defect Notification Period".)

2) JSSS2.2.2 (2): Site perimeter fencing shall be temporary, constructed of new and durable materials and fit for the purpose intended and maintained throughout the Time for Completion.
(Note: Site perimeter fencing is needed only during Time for Completion. This is to be kept as it is.)

3. Contractor's Personnel, Employer's Personnel and other persons entitled to be on the Site
This wording is very frequently used in JSSS, which exactly defines what we want, but very long. It will become even longer if we try to be precise as for definition of Site as discussed 1. above. To have an excessively long wording every time would be far from convenient for readers.
So, as we commented to JSSS 1.2.2, we think it better to do something. Creating another definition, such as "Project Related Personnel", for example, to describe all of those personnel collectively might be an idea.

2020 年 6 月 25 日

安全スペック上のモニタリングに関する要求事項について

日本工営　迫田様

JICA　インフラ技術業務部　伊藤

仮設、土工、基礎工事等の各種作業が周辺の建物等に対して与える影響について、従来の検討過程において、JICA から「発注者が主体的に許容値を定め、コントラクターに遵守させる」旨のコメントをし、御社の側から主として発注者に責任が転嫁されるという見地から消極的なコメントを頂いてきました。

今般、ユーザーガイド案（issue 2）を拝見し、JSSS 6.1.3 に対する Particular Safety Specification に関する解説として下記の記述を頂いています。

The Contractor is required under this clause of JSSS, to monitor the Temporary Works to demonstrate that they are performing safely, to the designed limits and for the intended purpose.

The Contractor is further required under the same clause of JSSS *"to monitor any vibration, settlement .....（中略）."*

If there is a risk that the execution of the Works may cause any adverse effect~~damage~~ to any "other properties" (as referred to in JSSS 6.1.3) and if the Executing Agency considers that particular ~~minimum~~ requirements for monitoring equipment, locations and methods are ~~helpful or~~ necessary, then these shall be stated in the Particular Safety Specification and the requirements shall be described. （中略）

When concerns about adverse effects to the safety or environment are particularly important, the Employer may designate working method or provide design of specific Temporary Works to be complied with by the Contractor in the Bidding Documents together with monitoring criteria and corresponding pay items in the BOQ.

If these particular ~~minimum~~ requirements are included, it is important also to state in the relevant clause in the Particular Safety Specification that the requirements are the minimum only and that compliance with such requirements shall not relieve the Contractor from any responsibility he has under the Contract including responsibility~~for assistance only and that they shall not in any way affect the Contractor's obligation~~ to execute the Works without causing adverse effect~~any damage~~ to other properties.

モニターの一義的責任をコントラクターに負わせ、但し発注者として必要と考える際には（結果責任はコントラクターに残した上で）PSS で指定するという記述は香港の MRT にもあるようにフェアな記述であると考えます。JICA としてもこの考え方を是とし(但し、上記の修正を加えて

コメントの追加 [J1]: 工事によって周辺に影響を及ぼし損傷が発生しかねない場合、(安全、環境、地元協議やその他の事情により)施行方法を決めておく必要がある場合には、発注者の責任で設計し、モニタリングなども予め決めておく必要があります。(この場合、指定仮設などのアイテムとして BoQ に入れておくのが通常です)

ください)。特に any damage という言い方はきついと思います)、従来上記のようにコメントしてきた部分に関しては、一旦白紙に戻させていただきます。結果として、それぞれの章において一部御社からご提示いただいたオリジナルの記述に戻していただくことをご検討頂いたほうが良い箇所がいくつかあるように思われます。当方にて気づきの箇所を以下に列挙しますが、この他にもあるかもしれず、該当箇所があれば最終ドラフト作成段階でご確認ください。

御社のオリジナルの記述	JICA からのその当時のコメント
The Contractor shall execute all Excavation Works and associated filling, backfilling and support work without causing ~~any damage~~adverse effect to or weakening of surrounding subsurface conditions or ground bearing capability, any existing foundations, structures, buildings, roads, paved areas or the like, either on or adjacent to the Site and unless otherwise specified as specified in the Contract (see Annex 1.3 Particular Safety Specification), the Contractor shall take all necessary measures to prevent the occurrence of such ~~damage~~adverse effect to or weakening by designing and providing permanent or temporary supports and reinforcement to such foundations, structures, buildings, roads or pave~~d~~ment and obtain the prior consent of the Engineer before commencing Excavation Works.	7.2.1 (6) PARTICULAR SAFETY MEASURES FOR EXCAVATION WORKS- General The Contractor shall execute all Excavation Works and associated filling, backfilling and support work so that the criteria of allowable values specified in the Contract (see the Particular Safety Specification) or instructed by the Engineer to avoid adverse effects to surrounding areas and buildings, including existing foundations, structures, roads, paved areas or the like, by excavation are to be respected. In this regard, the Contractor shall take all necessary measures to prevent the occurrence of such adverse effects by designing and providing permanent or temporary supports and reinforcement before commencing Excavation Works.
The Contractor shall monitor the vibrations caused by the Blasting operations to measure the extent of vibration in all affected areas particularly in the position of existing buildings, structures and other property on or adjacent to the Site and which may be affected	7.6.9 **Monitoring Impact on Adjacent Buildings and Structures** The Contractor shall monitor the vibrations caused by the Blasting operations in the affected areas, buildings, structures and properties identified in the Blasting Safety Plan to ensure that vibration damage or weakening caused by the Blasting operations will remain

コメントの追加 [J2]: 途上国においては違法建築などがあり、軽微な影響でもダメージが出る可能性があるため、悪影響という表現にしています。

コメントの追加 [J3]: この部分は今から思えば何を言いたいのかが分からないので、元に戻される時にご検討ください。

by the Blasting operations to ensure that no adverse effect~~vibration damage or weakening~~ is occured~~caused~~.	within the allowable values specified in the Contract or instructed by the Engineer.
The Contractor shall execute all Foundation Piling Works without causing ~~any damage~~adverse effect to or weakening of surrounding subsurface conditions or ground bearing capability, any existing foundations, structures, buildings, roads, paved areas or the like, either on or adjacent to the Site and unless otherwise specified in the Contract, the Contractor shall take all necessary measures to prevent the occurrence of such damage or weakening by carrying out all Foundation Piling Works, designing and providing permanent or temporary supports and reinforcement to such foundations, structures, buildings, roads or paved and obtain the prior consent of the Engineer before commencing Excavation Piling Works.	8.2.1(4) PARTICULAR SAFETY MEASURES FOR FOUNDATION PILING- General The Contractor shall execute all Foundation Piling Works without causing any damage to or weakening of surrounding subsurface conditions or ground bearing capability, any existing foundations, structures, buildings, roads, paved areas or the like, either on or adjacent to the Site and unless otherwise specified in the Contract, in accordance with the Particular Safety Specification or any other part of the Contract documents regarding the allowable values of vibration, noise, settlement and other negative impacts to those by the Foundation Piling Works. The Contractor shall take all necessary measures to prevent the occurrence of such damage or weakening by carrying out all Foundation Piling Works, designing and providing permanent or temporary supports and reinforcement to such foundations, structures, buildings, roads or paved areas or the like either on or adjacent to the Site as specified in the Particular Safety Specification and obtain the prior consent of the Engineer before commencing Excavation Foundation Piling Works.

JICA STANDARD SAFETY SPECIFICATION FOR PROJECT IMPLEMENTATION UNDER JAPANESE ODA

GUIDE FOR USE OF EXECUTING AGENCIES

Japan International Cooperation Agency (JICA)

30 June 2020

Prepared: NK
Issue: DFG1
Date: 30/06/2020

JICA STANDARD SAFETY SPECIFICATION (JSSS)
GUIDE FOR USE OF EXECUTING AGENCIES

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JICA STANDARD SAFETY SPECIFICATION (JSSS)
GUIDE FOR USE OF EXECUTING AGENCIES

1. INTRODUCTION

1.1 General

(1) This guide is prepared and issued for the information and assistance of Executing Agencies and (where applicable) their consultants for use in the preparation of Bidding and Contract Documents for Projects where such agencies have agreed with JICA that JSSS shall be adopted.

(2) Definitions and abbreviations used in this guide shall be the same as in JSSS.

(3) Reference to "Executing Agencies" in this guide shall be deemed to include their consultants that have been appointed to provide design stage services in accordance with JICA requirements.

(4) If the user has questions regarding the use of JSSS, the appropriate JICA's official should be consulted.

(5) This guide is for information only and will not form a part of any Contract for the execution of any Works.

1.2 Objective of JSSS

(1) As noted in JSSS, JICA requires that all parties engaged upon their ODA Projects shall endeavour to establish and maintain a culture ensuring human security and the maintenance of human rights as an essential and fundamental feature.

(2) The common objective shall be the achievement of a zero-accident rate on the Works, adopting the slogan of "Safety First" by creating a working environment where health and safety are of the highest priority.

(3) To assist with achieving this objective, JICA has published the JICA Standard Safety Specification (referred to as "JSSS"), which JICA wishes to be adopted for the Projects to be financed by JICA.

1.3 Effectiveness

Where the parties to a Loan Agreement have specifically agreed to adopt JSSS for a new Project, JSSS shall become effective and be used by Executing Agencies as the technical basis for Health and Safety management on that Project.

1.4 Content

(1) JSSS specifies the minimum health and safety requirements to be complied with by the Contractor throughout the execution of the Works.

(2) JSSS contains general rules for health and safety management with procedural requirements for the preparation, submission, review and response processes for Method Statements and Safety Plans to encourage the safe execution of the Works. JSSS further describes the involvement of Employer, Engineer and other contractors, and provides requirements for general administration and management of health and safety.

1.5 Applicability

(1) JSSS has been developed to apply to Japanese ODA Loan Projects based upon the Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer, Multilateral Development Bank Harmonised Edition, June 2010.

(2) JSSS may apply equally to other JICA assisted Projects that have been awarded under different forms of contract When so used, suitable modification shall be made to the definitions and text of JSSS and the Bidding Documents for those Projects to ensure

compatibility and consistency with the relevant contract requirements for the Project, reflecting the same intentions, standards and procedures for improving health and safety.

1.6 Incorporation of JSSS into Bids and Contracts

Where the parties to a Loan Agreement have specifically agreed to adopt JSSS for a Project, the Bidding Documents shall clearly state that Bids will be requested on the basis that JSSS is adopted.

1.7 Sound Working Environment

Safe construction sites are created from a sound working environment. JICA emphasise the importance of the Executing Agency assisting in the pursuit of a zero-accident rate on the Works, for example by creating a safe working environment for the Works, by including sufficient time for Bidding, reasonable Time(s) for Completion; reasonable, continuous and unobstructed access to the Site, reasonably detailed data on sub-surface and hydrological conditions at the Site, sufficient area(s) for the Site (including, working and storage areas) and the like, wherever possible.

JICA also believes that a sound working environment is enhanced by reasonable contract management by each Party to the Contract. While the responsibility to maintain health and safety at the Site lies with the Contractor, the Employer and Employer's Personnel are expected to be proactive for the Works to be executed under the slogan of "SAFETY FIRST" (refer to JSSS 1.1.1). This shall be accomplished by working closely together with the Contractor and issuing appropriate advisories or instructions to the Contractor whenever any situation affecting safety matters is identified.

1.8 Cost of Compliance with Health and Safety Requirements

The Executing Agency should recognise that sound health and safety measures require a reasonable expense the amount of which shall be taken into consideration when he prepares the cost estimate for a contract. Some of such measures should figure in the BOQ as individual pay items which, through payment during the execution of the Contract, will give the Contractor incentive to comply with those health and safety requirements in the Contract (for more details, refer to 3. Bill of Quantities in this User Guide).

Furthermore, the cost estimate prepared by the Executing Agency should be based on a practical construction method in the given natural and social environment (e.g. Temporary Works to be used). Such construction method shall be a reasonable one, which would be generally adopted to comply with the safety and health requirements imposed in the Contract, whether the corresponding pay items are given in the BOQ or not. The Executing Agency would, by doing so, be able to avoid cost underestimate, which will hinder the progress of implementation of the Project.

1.9 Structure of Specification

(1) JSSS shall be included as a part of the Specification for the Works as illustrated in the following Table UG 1.1 [*Incorporation of JSSS into Bid and Contract Documents*]. The Specification for the Works shall be subdivided into two parts namely:

(a) The Safety Specification (including JSSS); and

(b) Other parts of the Specification which shall comprise the specification for the general and technical aspects of the Works, excluding requirements for health and safety.

(2) The Safety Specification shall consist of two parts namely:

(a) Part 1: JICA Standard Safety Specification (JSSS):

Comprising JSSS as issued at the base date of the Contract

(b) Part 2: Particular Safety Specification:

Comprising a schedule containing the particular additions and modifications to JSSS, necessary to create a precise and relevant specification of the health and safety requirements for the Project.

Table UG 1.1: Incorporation of JSSS into Bid and Contract Documents

List of Contract Documents and Sequence of Priority (GC 1.5):

1. the Contract Agreement (*if any*),
2. the Letter of Acceptance,
3. the Letter of Tender,
4. the Particular Conditions - Part A,
5. the Particular Conditions - Part B,
6. these General Conditions,
7. the Specification:
   - (1) the Safety Specifications
     - (i) the Particular Safety Specifications
     - (ii) JSSS
   - (2) General and Technical Specifications

   no fixed content but usually containing:
     - (i) General Requirements
     - (ii) Site Preparation
     - (iii) Concrete Works
     - (iv) Others
8. the Drawings, and
9. the Schedules and any other documents forming part of the Contract.

Specification Priorities:

1. Within the–Safety Specification, the Particular Safety Specification shall have priority over JSSS, and
2. The Safety Specification shall have priority over the other parts of the Specification in respect of health and safety matters.

1.10 Drafting of Particular Safety Specification

(1) As JSSS is a specification of minimum requirements for compliance by the Contractor, there shall be no substantial deletion or alteration of JSSS requirements in the Particular Safety Specification unless so justified due the scope of Works~~,~~

(2) When additional or different safety requirements are to be applied due to Project specific requirements, these requirements shall be developed and included in the Particular Safety Specification.

(3) Executing Agencies shall take care when they prepare other parts of the Specification and other parts of the Bidding Documents where JSSS is to be adopted, to ensure that

there is no duplication of or contradiction to the health and safety requirements contained in the Project Safety Specification.

1.11 Use on Ongoing Projects

(1) Unless otherwise agreed between JICA and the Executing Agency, JSSS shall not be automatically used on all JICA funded Projects, JSSS shall only be used when it becomes effective on the particular ODA Project as described in this guide, in clause 1.3 [*Effectiveness*].

(2) Where JSSS is already in use on any Project and by further agreement between JICA and the Executing Agency, future issues/revisions of JSSS may be applied after the date that such future issues/revisions are published on line subject to issue by the Engineer of an appropriate Variation under GC 13.1 [*Right to Vary*].

1.12 JICA Standard Bidding Documents

(1) JICA intend to amend and re-issue the “Standard Bidding Documents Under Japanese ODA Loans, Procurement of Works”, published by the Japan International Cooperation Agency (JICA) (hereinafter referred to as “JSBD”) to cover the required amendments to accommodate JSSS.

(2) In order that JSSS can be used without delay and where so agreed to be used on particular Projects, the Bidding Documents for such Projects shall be drafted to take account of this guide in advance of publication of the next issue of JSBD.

(3) The form of “Safety Plan” in Section IV. Bidding Forms shall include an explanatory note to the Bidders to inform them that they shall submit a safety plan in their bid in accordance with Annex 1.2 of JSSS “Bid Stage Safety Plan”

(4) HSO shall be specified as one of the Key personnel to be evaluated in Section III. Evaluation and Qualification Criteria,

(5) Bidders Safety Declaration shall be added in Section IV Bidding Forms.

2. PARTICULAR SAFETY SPECIFICATION

2.1 Drafting Generally

(1) The Particular Safety Specification shall be carefully and precisely drafted by amending the various general requirement clauses of JSSS by adding particular requirements to ensure that the scope is precisely specified and so that the Contractor's obligations shall be clear and unambiguous.

(2) The amendments shall cover the examples listed in the table in clause 2.2 below, noting that this listing is not exhaustive.

(3) The use in JSSS of the phrase "specified in the Particular Safety Specification" shall mean that either full requirements shall be specified in the Particular Safety Specification or that reference shall be made in the Particular Safety Specification to other particular parts of the Specification or other documents comprised in the Contract, where full requirements are so specified.

2.2 Particular Requirements

In addition to the requirements described in this guide in Clause 2.1 [*Drafting Generally*], the Executing Agency shall consider the requirements of all clauses in the following table and include appropriate clauses in the Particular Safety Specification:

Reference	Particular Safety Specification Requirements
JSSS 1.4.8 Continued Compliance with JSSS throughout the DNP	The Contractor's obligations to provide temporary services and facilities generally finish at the end of the Time for Completion plus any additional period(s) within the Defects Notification Period (DNP) when the Contractor may be completing any outstanding work or remedying any defective work. If for any reason the Contractor is required to maintain a further presence at the Site during the DNP, this shall be clearly stated in the Particular Safety Specification together with the reasons, scope and duration of such presence as mentioned in 1.24 Accident Response Plan and 1.36 Health Matters hereunder in 2.2.
JSSS 1.12 Health and Safety Officer at the Site (HSO)	Refer to JSSS 1.12 where the minimum required period of experience and types of qualification for the HSO are described. If different periods of experience or qualifications are legal requirements under the Laws of the Country, then these shall be clearly stated in the Particular Safety Specification. The general requirement in JSSS is that the HSO shall be assigned full-time upon the Works and spend all of his time on health and safety management. JICA advise that such full-time assignment is the normal requirement and part-time or shared assignment is only allowable on extremely small Projects or when part-time or shared assignment is justified with particular reasons. If the justification for part-time or shared assignment is acceptable to JICA, the agreed requirements shall be clearly stated in the Particular Safety Specification.

Reference	Particular Safety Specification Requirements
JSSS 1.21 Skill Training	The Particular Safety Specification shall state whether the Contractor is allowed to bring into the Country for use upon the Works any unqualified, unskilled or inexperienced foreign Contractor's Personnel. The Particular Safety Specification shall specify for example: (1) Requirements for teachers. (2) That the Contractor shall design syllabi to compliment the candidates' skill group, their work and position at the Site. (3) In addition to skill training, syllabi shall include health and safety training to an international level of appreciation with a general introduction to OSHA and other international safety standards and regulations. (4) Requirements for testing of candidates for example that the Contractor shall test candidates upon completion of their course, prepare and issue certificates of attendance and successful completion of each course.
JSSS 1.22.10 Hazardous Substances	After Site survey and investigation has been carried out by the Executing Agency during the design stage and if it is considered that there is any likelihood of the existence of Hazardous Substances at the Site of the Works or in any existing buildings and structures, the results of the survey shall be included in the Particular Safety Specification. If the Contractor is required to remove, the Employer's requirements for removal and disposal shall be clearly specified.
JSSS 1.24 Accident Response Plan	Although the Contract places obligations upon the Contractor under GC6.7 [Health and Safety], the Particular Safety Specification shall include a listing and description of any particular services and facilities that the Contractor is required to provide at the Site in addition to those already described in the Conditions of Contract. This is particularly relevant where the Site is located at an excessive distance from urban areas and/or where there is a lack of immediate availability of medical facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel on the Site. The circumstances shall be investigated by Executing Agencies during the design stage and full requirements shall be clearly described in the Bidding Documents. Such additional facilities at the Site could for example include: (1) Enhanced medical staff with qualified doctor(s). (2) Enhanced first aid and treatment facilities and staff.

Reference	Particular Safety Specification Requirements
	(3) Enhanced medical equipment, medical supplies, medicines and drugs. (4) Additional treatment and recovery rooms. (5) An equipped ambulance based at the Site with qualified driver and attenders. (6) Where transfer time by road can exceed required time for major trauma injuries from the Site to trauma treatment centre, emergency air-ambulance evacuation services, shall also be considered in addition to the above. (7) Above available 7 days per week, 24 hours per day or during the normal working hours stated in the Contract Data, etc. The Particular Safety Specification shall state whether the medical, first aid and related services and facilities at the Site are to be available for during the normal working hours stated in the Contract or for any longer times. If any facilities as required under the Contract or additional facilities as required by JSSS are required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking-Over Certificate then this shall be clearly specified in the Particular Safety Specification. All such facilities shall be described and fully specified. If any facilities are to be handed to the Employer then any related requirements for replacement, repair or renovation shall be described. The Particular Safety Specification shall also state whether the medical, first aid and related services and facilities at the Site for accidental injuries (or more) shall also be made available and whether free of charge or not to any accompanying family members of the Contractor's Personnel, the Employer's Personnel and the family members of any other persons who are entitled to be on the Site and other places (if any) where the Works are being executed.
JSSS 1.29 Project Safety Committee	On large Projects with multiple contract packages, the Executing Agency may consider that an overall Project Safety Committee should be established to manage and coordinate all of the various contracts comprised in the Project.
JSSS 1.30 Health and Safety Coordination with Other Contractors, (refer also to GC 2.3 [*Employer's Personnel*])	The Particular Safety Specification shall describe the scope of work of any other contractors to be employed by the Employer on the Site and where possible identify them by name. The Particular Safety Specification shall also describe the scope of work of any legally constituted public authorities who may be employed by either the Employer or by the Contractor to execute work on or near the Site and identify them by name.

Reference	Particular Safety Specification Requirements
JSSS 1.36 Health Matters	Although the Contract places obligations upon the Contractor under GC6.7 [*Health and Safety*], the Particular Safety Specification should include a listing and description of any particular services and facilities that the Contractor is required to provide at the Site for health control in addition to those already described in the Contract. The listing should also include accommodation, furniture and equipment for rest stations, restroom, dining facilities, canteens, sanitary facilities, recreational facilities, shower facilities, changing rooms, religious facilities if needed and the like together with a description of any requirements for use and for example whether facilities can be used by the Employer's Personnel and their families. This is particularly relevant where the Site is situated some distance away from urban areas and/or where there is a lack of immediate availability of suitable medical facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel, to compensate for any lack of available services or facilities or lack of any local health authorities. The circumstances shall be investigated by Executing Agencies and their consultants during the design stage and full requirements shall be clearly described in the Bidding Documents. The Particular Safety Specification shall state whether the services and facilities specified are to be available during the normal working hours stated in the Contract or for any longer times. If any facilities as required under the Contract or additional facilities as required by JSSS are required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking-Over Certificate then this shall be clearly specified in the Particular Safety Specification. All such facilities shall be described and fully specified. If any facilities are to be handed to the Employer, any requirements for replacement, repair or renovation shall be described. The Particular Safety Specification shall also state whether the services and facilities at the Site shall also be made available and whether free of charge or not, to any accompanying family members of the Contractor's Personnel, or to the Employer's Personnel or to the family members of any other persons who are entitled to be on the Site and other places (if any) where the Works are being executed.
JSSS 1.37	As a standard requirement, the Particular Safety Specification shall require the Contractor to comply with BS5975 (latest issue) or approved equivalent for the design and management of Temporary Works.

Reference	Particular Safety Specification Requirements
Design and Management of Temporary Works	If the Contractor is NOT required to comply with BS5975, the Particular Safety Specification shall state this and also state that the Contractor is still required to comply in any event with the specified requirements of JSSS 1.37 and submit full details in the Safety Plan.
JSSS 1.38 Unexploded Ordnance (UXO)	If there is a known possibility that any UXO may exist at the Site, then this shall be surveyed and investigated by the Executing Agency before Bids are requested. The result of this investigation shall be clearly stated and full information including survey and investigation results shall be provided by the Executing Agency in the Particular Safety Specification. Clearance of UXO shall be undertaken by the Executing Agency as a condition precedent to commencement under GCC 8.1 [*Commencement of Works*], by the agency's own arrangements and at their own cost. Clearance shall be carried out by specialist government organisations, forces or contractor(s) that are appropriately and specifically qualified, skilled and experienced in the safe and environmentally acceptable removal and disposal of UXO, engaged directly by the Executing Agency. Completion of clearance shall be evidenced through the issue by the Executing Agency's specialist remover of a certificate of UXO clearance from the Site area. A copy of this certificate shall be provided to the Engineer and the Contractor. No work shall commence in relevant areas of the Site until the receipt by the Engineer and Contractor of a copy of this certificate. Should the Contractor encounter any UXO, after a clearance certificate has been issued in accordance with the above, he shall immediately stop all affected work at Site, clear the affected area of all Contractor's Personnel, Employer's Personnel and all other persons and notify the Engineer and relevant authorities. Unless otherwise agreed with the Contractor, the Employer shall then make further arrangements for removal and disposal, then obtain and issue a further clearance certificate. Work shall resume in the affected areas after the Contractor has received a copy if the further clearance certificate together with any further instructions from the Engineer.
JSSS 2.1.1 Hazardous Substances	If there is a known possibility that any Hazardous Substances may exist at the Site this shall be stated and full details provided of all likely hazards in the Particular Safety Specification.
JSSS 2.1.2 (3) Asbestos	If there is a known possibility that asbestos in any of its various forms may exist at the Site (for example in existing buildings, structures or installations or which has been disposed of or buried at the Site then this shall be surveyed and investigated by the Executing Agency using a specialist qualified consultant/contractor before Bids are requested. The result of this investigation shall be clearly stated and full information including

Reference	Particular Safety Specification Requirements
	survey and investigation results shall be provided in the Particular Safety Specification. If possible, removal and disposal of this asbestos shall be undertaken by the Executing Agency before commencement of the Works by the Executing Agency's own arrangements and at their own cost. Removal and disposal shall be carried out by a specialist that is appropriately and specifically qualified, skilled and experienced in the safe and environmentally acceptable removal and disposal of asbestos, engaged directly by the Executing Agency. Completion of removal and disposal shall be evidenced through the issue by the specialist of a suitable certificate. A copy of this certificate shall be provided to the Engineer and the Contractor. No work shall commence at the Site until the receipt by the Engineer and Contractor of a copy of this certificate. Should the Contractor encounter any asbestos, after a clearance certificate has been issued in accordance with the above, he shall immediately stop all affected work at Site, clear the affected area of all Contractor's Personnel, Employer's Personnel and all other persons and notify the Engineer and relevant authorities. Unless otherwise agreed between Employer and Contractor, the Engineer shall issue an appropriate Variation under GC 13 [*Variations and Adjustments*]. If removal is to be undertaken by the Contractor, this shall be stated in the Particular Safety Specification with full details and drawings of the extent and requirements for removal and disposal. Separate pay items shall be included in the Bill of Quantities to allow pricing of the removal and disposal with separate lump sum items given for mobilisation and removal of resources and approximate quantities given for the area of asbestos.
JSSS 2.2.2 Working Area Perimeter	The Particular Safety Specification shall describe the required working area perimeter showing the extent, dimensions, constructional details and specification, whether temporary or permanent. This shall also be shown on the Drawings. Requirements for permanent or temporary fencing or barriers within the Site shall be described and shown for example around areas where Dangerous Work is being carried out. Gates, barriers and other measures at Site entrances shall be described together with any arrangements for communications, lighting and power supply. Requirements for security at the Site entrance and also around the Site shall be described and whether these are to be provided by the Contractor or the Employer.

Reference	Particular Safety Specification Requirements
JSSS 2.2.6 Community Relations	If the Contractor is required, to assist the Employer with maintaining community relations, for example conducting traffic safety and awareness activities for the local community, this shall be described in the Particular Safety Specification and full details of requirements shall be specified.
JSSS 2.3.1 Prohibition of Entry - Dangerous Work	If there is a known possibility that any Dangerous Work will be necessary this shall be stated and full details provided of all likely hazards in the Particular Safety Specification. If the scope of Works includes any work to be performed in Operational Areas, then a list of such works and a full description of the nature and conditions of operations shall be included in the Particular Safety Specification. Any requirements and restrictions on the Contractor's working methods and times and any special access, safety or other arrangements shall be further described in detail. The respective responsibilities for insurance, health and safety management, security, health and welfare facilities, etc., between the Employer and Contractor(s) shall be clearly described so that there is no doubt over what each party is to perform or provide. A copy of the Employer's working procedures, including their health and safety procedures shall be provided to Bidders for their study during the Bidding period.
JSSS 2.8 Fire Prevention	Although the Contract places obligations upon the Contractor for care of the Works, the Particular Safety Specification should include a listing and description of any particular fire-fighting and rescue services and facilities that the Contractor is required to provide at the Site. This is particularly relevant where the Site is situated some distance away from urban areas and/or where there is a lack of immediate availability of suitable fire-fighting and rescue facilities, or where such facilities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel, to compensate for any lack of available services or facilities or lack of any local health authorities. The circumstances shall be investigated by Executing Agencies during the design stage and full requirements shall be clearly specified in the Particular Safety Specification. Such additional facilities at the Site could for example include: (1) An equipped fire engine based at the Site with qualified driver and crew selected from the workers at the Site. (2) Sufficient temporary water and power supply to maintain emergency use. (3) Additional PPE for the fire-fighting and rescue team.

Reference	Particular Safety Specification Requirements
	(4) Enhanced fire protection equipment and facilities around the Site. (5) Above available 7 days per week, 24 hours per day or during the normal working hours stated in the Contract Data, etc. Where applicable, details shall be provided in the Particular Safety Specification for the selection, training and equipping of emergency fire-fighting teams selected from existing Contractor's Personnel at the Site, who in addition to their normal work, shall be called upon immediately in the event of any fire, to rescue any person(s) who may become trapped or injured or otherwise affected or incapacitated by fire and to provide suitable, specialist and appropriate first aid and medical treatment. Without limiting the Contractor's obligations, the Particular Safety Specification shall describe the particular scope of fire prevention services that are to be provided by the Contractor for the Works. If any facilities as required under the Contract or additional facilities as required by JSSS are required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking-Over Certificate then this shall be clearly specified in the Particular Safety Specification. All such facilities shall be described and fully specified. If any facilities are to be handed to the Employer, any requirements for replacement, repair or renovation shall be described.
JSSS Chapter 3 Existing Underground, Concealed and Overhead Services	The Particular Safety Specification shall describe the required extent of any work required in connection with any existing Underground, Concealed or Overhead Services, with details and specification and this shall also be shown on the Drawings. If any such services are the property of the Employer, this shall be stated clearly and the route, size, purpose of each shall be described and shown. If these services are to remain live and functional throughout the Time for Completion of the Works or if they are to be removed and if so by whom shall also be described. If any of these services are the property of a legally constituted public authority or a third party, this shall be stated clearly and the owner, route, size, purpose of each shall be described and shown. A copy of the regulations of the legally constituted public authority or third party shall be provided in the Particular Safety Specification or made available with the Bidding documents If services are to remain live and functional throughout the Time for Completion of the Works or if they are to be removed and if so by whom, (i.e. the authority or third party or the Contractor) shall also be described. The Particular Safety Specification shall also describe or include the procedures and requirements (including responsibility for insurance and safety procedures) of the authority or third party if the Contractor is to carry out the work.

Reference	Particular Safety Specification Requirements
JSSS 4.7 Temporary Fuelling Facilities	If fuel storage and dispensing arrangements are existing at the Site and are available for the Contractor's temporary use upon the Works then this shall be specified in the Particular Safety Specification and the requirements for use shall be described. Otherwise, the Contractor shall design and construct temporary fuel storage and dispensing facilities at the Site for the use of Contractor's Equipment. If there are any restrictions upon the provision and use of such facilities, then these shall be described in the Particular Safety Specification.
JSSS 6.1.1 Design and Provision of Temporary Works Generally	In accordance with JSSS 1.37 [Design and Management of Temporary Works], the Contractor is generally required to comply with the requirements of BS5975: Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework or an equivalent alternative standard. On exceptionally small projects or projects which do not demand the provision of complex temporary supporting or load bearing falsework and the like, the following alternative requirements may apply and if so, the following shall be included in the Particular Safety Specification: The Contractor shall demonstrate by description in the Safety Plan that he has effective arrangements in place for controlling risks arising from the design, selection of materials, components and equipment, use, management, dismantling and removal of Temporary Works including for example, by ensuring the following: (1) Appointment of appropriately qualified and experienced staff. (2) Preparation of adequate Temporary Works designs. (3) Independent internal or external checking of the Temporary Works Design. (4) Preparation of a Temporary Works register and records (5) Pre-erection inspection of all Temporary Works, including materials, components and equipment. (6) Control and supervision of the Temporary Works erection, safe use, maintenance and dismantling of the Temporary Works, including procedures to: (a) Check that the Temporary Works have been erected in accordance with the design and issue by the HSO of a suitable sign showing it as complete and safe to use; and (b) Confirm when the Permanent Works have attained adequate strength to allow dismantling of the Temporary Works and issue by the HSO of a suitable sign showing that it is ready for dismantling.

Reference	Particular Safety Specification Requirements
	In accordance with JSSS 1.18 [Proper Placement of Contractor's Personnel], the Contractor shall ensure that the design, erection, maintenance, dismantling and removal of Temporary Works, are all carried out by competent and experienced persons and in a controlled and closely supervised manner.
JSSS 6.1.3 Monitoring the Performance of Temporary Works	The Contractor is required under this clause of JSSS, to monitor the Temporary Works to demonstrate that they are performing safely, to the designed limits and for the intended purpose. The Contractor is further required under the same clause of JSSS *"to monitor any vibration, settlement and other potentially damaging effects arising out of the execution of the Works to ascertain if these are causing any adverse effect to ground, buildings, structures and other properties, paved areas, roads, footpaths, fences, railways, waterways, drainage, utilities or any other property on the Site or outside the Site (collectively referred to in this Section as "other properties") to ensure that no damage or weakening is caused to such other properties."* If there is a risk that the execution of the Works may cause any damage to any "other properties" (as referred to in JSSS 6.1.3) and if the Executing Agency considers that particular requirements for monitoring equipment, locations and methods are necessary, then these shall be specified in the Particular Safety Specification. The methods may include for example the inclusion of monitoring criteria in the Particular Safety Specification to assist the Contractor in establishing his own procedures for monitoring to avoid any damage to other properties. **If these particular requirements are included, it is important also to state in the relevant clause of the Particular Safety Specification that the requirements are the minimum only and that compliance with such requirements shall not relieve the Contractor from any responsibility he has under the Contract including responsibility to execute the Works without causing any damage to other properties.**
JSSS 6.2 Earthwork Support	For monitoring requirements, refer to the above reference in this table to JSSS 6.1.3 [*Monitoring the Performance of Temporary Works*].
JSSS 6.3 Cofferdams	For monitoring requirements, refer to the above reference in this table to JSSS 6.1.3 [*Monitoring the Performance of Temporary Works*].
JSSS 7.2	In accordance with JSSS 7.2, the Contractor shall be responsible for choosing manual or machine excavation, selecting types of Contractor's Equipment, types of Temporary Works, Earthwork

Reference	Particular Safety Specification Requirements
Particular Safety Measures	Support, spoil removal, storage and handling, controlling ground and surface water, forming embankments and cuttings and the like. If there are any known and specific requirements or restrictions to be placed upon the Contractor for methods of excavation, types of equipment, Temporary Works Earthwork Support, spoil removal, storage and handling, controlling ground and surface water, forming embankments, cuttings and the like, then this shall be stated in the Particular Safety Specification and the requirements shall be specified.
JSSS 7.1.2 Monitoring of Excavation Works and Surroundings	For monitoring requirements, refer to the above reference in this table to JSSS 7.1.2 [*Monitoring of Excavation Works and Surroundings*].
JSSS 7.6.11 Monitoring Impact of Blasting Works on Other Properties	If the scope of Works includes Blasting Works for tunnelling which is presently not included in the scope of JSSS, full requirements shall be specified in the Particular Safety Specification. If Blasting Works are not allowable then this shall be stated in the Particular Safety Specification and any requirements and restrictions shall be specified. For monitoring requirements, refer to the above reference in this table to JSSS 7.6.11 [*Monitoring Impact of Blasting Works on Other Properties*].
JSSS 8.2.8 Monitoring Impact of Foundation Piling Works on Other Properties	For monitoring requirements, refer to the above reference in this table to JSSS 8.2.8 [*Monitoring Impact of Foundation Piling Works on Other Properties*].
JSSS 10.5.2 Diving Workboat	If the scope of Works includes Diving Works, and if there are any requirements and restrictions then these shall be described in the Particular Safety Specification. If there is a decompression chamber or medical support facilities existing at or near to the diving site and is available for the use of the Contractor then this shall be stated and the type, specification and capacity shall be specified together with any requirements and restrictions for use. If a separate rescue boat is recommended to be provided and moored alongside the workboat for assisting with recovery of Divers who are in difficulty or have drifted away from position then this shall be stated and full requirements shall be specified. If there are any special requirements for communications with the Dive Team, these shall also be described.

Reference	Particular Safety Specification Requirements
GC 6.6 Facilities for Contractor's and Employer's Personnel	The Particular Safety Specification shall describe any necessary accommodation and welfare facilities that the Contractor is to provide for the Contractor's Personnel and whether such facilities or further facilities are also to be provided for the Employer's Personnel and others. If any land area is available at the Site for such facilities this shall be stated and shown and any requirements and restrictions shall be described. The Particular Safety Specification shall describe the required scope, design, constructional details and specification, whether temporary or permanent and this shall also be shown on the Drawings. If such facilities are required, the Particular Safety Specification shall describe in detail: (1) Responsibility and scope of maintenance, repair and cleaning of such facilities as necessary to maintain them in a clean, habitable, hygienic and safe condition, including garbage removal and disposal, rodent and insect control and the like. (2) Responsibility for and scope of potable water supply, water and power supply, waste water and sewage drainage and treatment. (3) Whether such facilities are required to be provided during the Defects Notification Period (4) Whether such facilities are to be removed by the Contractor or are to be handed over to the Employer on issue of the Taking-Over Certificate and if so in what condition. The extent of provision by the Contractor shall take due account of the nature and location of the Site and the condition of access thereto, with a higher range and standard of facilities being provided in remote locations to promote good health, hygiene, comfort, welfare and safety of all users and occupants.

3. BILL OF QUANTITIES

3.1 Incorporation of JSSS Requirements

(1) The Bills of Quantities to be prepared by the Executing Agency for the purposes of the Bidding Documents, Section IV. Bidding Forms shall include separate pay items to cover the main component parts of JSSS.

(2) The Executing Agency shall prepare a Bill of Quantities in accordance with the JICA Standard Bidding Document in order:

(a) to provide the facility for the Contractor to include the cost of JSSS compliance in his Bid; and

(b) to provide a basis for the preparation of Statements as part of the Contractor's application for payment under GC 14 [*Contract Price and Payment*].

(3) Appropriate pay items shall be included in Bill No. 1 - General Items, to cover all principal components of the Safety Specification, such as:

(a) Assignment of HSO with supporting staff and provision of safety management activities (JSSS 1.13);

(b) Skill Training (JSSS 1.21);

(c) Accident Response Facilities (JSSS 1.24);

(d) Emergency Response Plan (JSSS 1.26);

(e) Health Facilities (JSSS 1.36);

(f) Design and Management of Temporary Works (JSSS 1.37); and

(g) Fire Prevention (JSSS 2.8).

(4) The Pay items for the above shall be separated into lump sum and monthly payment items generally in accordance with the following table:

Ref	Description	Establishment and removal of facilities (sum)	Provision of Services (month)
(a)	Assignment of HSO with supporting staff and provision of safety management activities		✔
(b)	Skill Training	*Awaiting further Information*	*Awaiting further Information*
(c)	Accident Response Facilities	✔	✔
(d)	Emergency Response Plan	*Awaiting further Information*	*Awaiting further Information*
(e)	Health Facilities	✔	✔

(f)	Design and Management of Temporary Works		✔
(g)	Fire Prevention	✔	✔

Note: The above quantity (expressed in months) shall be of the required period for provision which usually will not exceed the Time for Completion. Any services required during the Defects Notification Period to oversee completion of outstanding work and remedying defects shall usually be at the Contractor's own cost.

(5) Appropriate pay items shall be included in other Bills of Quantities with relevant quantities, unit rates and sums for other parts of JSSS according to the particular scope of the Works for example removal of known hazardous substances, Blasting Work and Diving Works.

JICA STANDARD SAFETY SPECIFICATION FOR PROJECT IMPLEMENTATION UNDER JAPANESE ODA

GUIDE FOR USE OF EXECUTING AGENCIES

Japan International Cooperation Agency (JICA)

30 June 2020

Prepared: NK
Issue: DFG1
Date: 30/06/2020

JICA STANDARD SAFETY SPECIFICATION (JSSS)
GUIDE FOR USE OF EXECUTING AGENCIES

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JICA STANDARD SAFETY SPECIFICATION (JSSS)
GUIDE FOR USE OF EXECUTING AGENCIES

1. INTRODUCTION

1.1 General

(1) This guide is prepared and issued for the information and assistance of Executing Agencies and (where applicable) their consultants for use in the preparation of Bidding and Contract Documents for Projects where such agencies have agreed with JICA that JSSS shall be adopted.

(2) Definitions and abbreviations used in this guide shall be the same as in JSSS.

(3) Reference to "Executing Agencies" in this guide shall be deemed to include their consultants that have been appointed to provide design stage services in accordance with JICA requirements.

(4) If the user has questions regarding the use of JSSS, the appropriate JICA's official should be consulted.

(5) This guide is for information only and will not form a part of any Contract for the execution of any Works.

1.2 Objective of JSSS

(1) As noted in JSSS, JICA requires that all parties engaged in~~upon~~ their ODA Projects shall endeavour to establish and maintain a culture ensuring human security and the maintenance of human rights as an essential and fundamental feature.

(2) The common objective shall be the achievement of a zero-accident rate on the Works, adopting the slogan of "Safety First" by creating a working environment where health and safety are of the highest priority.

(3) To assist with achieving this objective, JICA has published the JICA Standard Safety Specification (referred to as "JSSS"), which JICA wishes to be adopted for the Projects to be financed by JICA.

1.3 Effectiveness

Where the parties to a Loan Agreement have specifically agreed to adopt JSSS for a new Project, JSSS shall become effective and be used by Executing Agencies as the technical basis for Health and Safety management on that Project.

1.4 Content

(1) JSSS specifies the minimum health and safety requirements to be complied with by the Contractor throughout the execution of the Works.

(2) JSSS contains general rules for health and safety management with procedural requirements for the preparation, submission, review and response processes for Method Statements and Safety Plans to encourage the safe execution of the Works. JSSS further describes the involvement of the Employer, Engineer and other contractors, and provides requirements for general administration and management of health and safety.

1.5 Applicability

(1) JSSS has been developed to apply to Japanese ODA Loan Projects based upon the Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer~~,~~ (Multilateral Development Bank Harmonised Edition, June 2010) published by Fédération Internationale des Ingénieurs-Conseils (FIDIC).

(2) JSSS may apply equally to other JICA assisted Projects that have been awarded under different forms of contract. When so used, suitable modification shall be made to the

definitions and text of JSSS and the Bidding Documents for those Projects to ensure compatibility and consistency with the relevant contract requirements for the Project, reflecting the same intentions, standards and procedures for improving health and safety.

1.6 Incorporation of JSSS into Bids and Contracts

Where the parties to a Loan Agreement have specifically agreed to adopt JSSS for a Project, the Bidding Documents shall clearly state that Bids will be requested on the basis that JSSS is adopted.

1.7 Sound Working Environment

Safe construction sites are created from a sound working environment. JICA emphasise the importance of the Executing Agency assisting in the pursuit of a zero-accident rate on the Works, for example by creating a safe working environment for the Works, by including sufficient time for Bidding, reasonable Time(s) for Completion; reasonable, continuous and unobstructed access to the Site, reasonably detailed data on sub-surface and hydrological conditions at the Site, sufficient area(s) for the Site (including, working and storage areas) and the like, wherever possible.

JICA also believes that a sound working environment is enhanced by reasonable contract management by each Party to the Contract. While the responsibility to maintain health and safety at the Site lies with the Contractor, the Employer and Employer's Personnel are expected to be proactive for the Works to be executed under the slogan of "SAFETY FIRST" (refer to JSSS 1.1.1). This shall be accomplished by working closely together with the Contractor and issuing appropriate advicessories or instructions to the Contractor whenever any situation affecting safety matters is identified.

1.8 Cost of Compliance with Health and Safety Requirements

The Executing Agency should recognise that sound health and safety measures require a reasonable expense the amount of which shall be taken into consideration when he prepares the cost estimate for a contract. Some of such measures should figure in the BOQ as individual pay items which, through payment during the execution of the Contract, will give the Contractor incentive to comply with those health and safety requirements in the Contract (for more details, refer to 3. Bill of Quantities in this User Guide).

Furthermore, the cost estimate prepared by the Executing Agency should be based on a practical construction method in the given natural and social environment (e.g. Temporary Works to be used). Such construction method shall be a reasonable one, which would be generally adopted to comply with the safety and health requirements imposed in the Contract, whether the corresponding pay items are given in the BOQ or not. The Executing Agency would, by doing so, be able to avoid cost underestimate, which will hinder the progress of implementation of the Project.

1.9 Structure of Specification

(1) JSSS shall be included as a part of the Specification for the Works as illustrated in the following Table UG 1.1 [*Incorporation of JSSS into Bid and Contract Documents*]. The Specification for the Works shall be subdivided into two parts namely:

(a) The Safety Specification (including JSSS); and

(b) Other parts of the Specification which shall comprise the specification for the general and technical aspects of the Works, excluding requirements for health and safety.

(2) The Safety Specification shall consist of two parts namely:

(a) Part 1: JICA Standard Safety Specification (JSSS):

Comprising JSSS as issued at the ~~base~~ Base ~~date~~ Date of the Contract

(b) Part 2: Particular Safety Specification:

Comprising a schedule containing the particular additions and modifications to JSSS, necessary to create a precise and relevant specification of the health and safety requirements for the Project.

Table UG 1.1: Incorporation of JSSS into Bid and Contract Documents

List of Contract Documents and Sequence of Priority (GC 1.5):

1. the Contract Agreement (*if any*),
2. the Letter of Acceptance,
3. the Letter of Tender,
4. the Particular Conditions - Part A,
5. the Particular Conditions - Part B,
6. these General Conditions,
7. the Specification:
   - (1) the Safety Specifications
     - (i) the Particular Safety Specifications
     - (ii) JSSS
   - (2) General and Technical Specifications

   no fixed content but usually containing:
     - (i) General Requirements
     - (ii) Site Preparation
     - (iii) Concrete Works
     - (iv) Others
8. the Drawings, and
9. the Schedules and any other documents forming part of the Contract.

Specification Priorities:

1. Within the Safety Specification, the Particular Safety Specification shall have priority over JSSS, and
2. The Safety Specification shall have priority over the other parts of the Specification in respect of health and safety matters.

1.10 Drafting of Particular Safety Specification

(1) As JSSS is a specification of minimum requirements for compliance by the Contractor, there shall be no substantial deletion or alteration of JSSS requirements in the Particular Safety Specification unless so justified due the scope of the Works.

(2) When additional or different safety requirements are to be applied due to Project specific requirements, these requirements shall be developed and included in the Particular Safety Specification.

(3) Executing Agencies shall take care when they prepare other parts of the Specification and other parts of the Bidding Documents where JSSS is to be adopted, to ensure that there is no duplication of or contradiction to the health and safety requirements contained in the Project Safety Specification.

1.11 Use on Ongoing Projects

(1) Unless otherwise agreed between JICA and the Executing Agency, JSSS shall not be automatically used on all JICA funded Projects, JSSS shall only be used when it becomes effective on the particular ODA Project as described in this guide, in clause 1.3 [*Effectiveness*].

(2) Where JSSS is already in use on any Project and by further agreement between JICA and the Executing Agency, future issues/revisions of JSSS may be applied after the date that such future issues/revisions are published on line subject to issue by the Engineer of an appropriate Variation under GC 13.1 [*Right to Vary*].

1.12 JICA Standard Bidding Documents

(1) JICA intend to amend and re-issue the “Standard Bidding Documents Under Japanese ODA Loans, Procurement of Works”, published by the Japan International Cooperation Agency (JICA) (hereinafter referred to as “JSBD”) to cover the required amendments to accommodate JSSS.

(2) In order that JSSS can be used without delay and where so agreed to be used on particular Projects, the Bidding Documents for such Projects shall be drafted to take account of this guide in advance of publication of the next issue of JSBD.

(3) The form of “Safety Plan” in Section IV. Bidding Forms shall include an explanatory note to the Bidders to inform them that they shall submit a safety plan in their bid in accordance with Annex 1.2 of JSSS “Bid Stage Safety Plan”

(4) HSO shall be specified as one of the k~~K~~ey personnel to be evaluated in Section III. Evaluation and Qualification Criteria,

(5) Bidders Safety Declaration shall be added in Section IV Bidding Forms.

2. PARTICULAR SAFETY SPECIFICATION

2.1 Drafting Generally

(1) The Particular Safety Specification shall be carefully and precisely drafted by amending the various general requirement clauses of JSSS by adding particular requirements to ensure that the scope is precisely specified and so that the Contractor's obligations shall be clear and unambiguous.

(2) The amendments shall cover the examples listed in the table in clause 2.2 below, noting that this listing is not exhaustive.

(3) The use in JSSS of the phrase "specified in the Particular Safety Specification" shall mean that either full requirements shall be specified in the Particular Safety Specification or that reference shall be made in the Particular Safety Specification to other particular parts of the Specification or other documents comprised in the Contract, where full requirements are so specified.

2.2 Particular Requirements

In addition to the requirements described in this guide in Clause 2.1 [*Drafting Generally*], the Executing Agency shall consider the requirements of all clauses in the following table and include appropriate clauses in the Particular Safety Specification:

Reference	Particular Safety Specification Requirements
~~JSSS 1.4.8~~ ~~Continued Compliance with JSSS throughout the DNP~~	~~The Contractor's obligations to provide temporary services and facilities generally finish at the end of the Time for Completion plus any additional period(s) within the Defects Notification Period (DNP) when the Contractor may be completing any outstanding work or remedying any defective work.~~ ~~If for any reason the Contractor is required to maintain a further presence at the Site during the DNP, this shall be clearly stated in the Particular Safety Specification together with the reasons, scope and duration of such presence as mentioned in 1.24 Accident Response Plan and 1.36 Health Matters hereunder in 2.2.~~
JSSS 1.12 Health and Safety Officer at the Site (HSO)	Refer to JSSS 1.12 where the minimum required period of experience and types of qualification for the HSO are described. If different periods of experience or qualifications are legal requirements under the Laws of the Country, then these shall be clearly stated in the Particular Safety Specification. The general requirement in JSSS is that the HSO shall be assigned full-time upon the Works and spend all of his time on health and safety management. JICA advise that such full-time assignment is the normal requirement and part-time or shared assignment is only allowable on extremely small Projects or when part-time or shared assignment is justified with particular reasons. If the justification for part-time or shared assignment is acceptable to JICA, the agreed requirements shall be clearly stated in the Particular Safety Specification.

コメントの追加 [伊藤1]: デフォルトを「Time for Completion」までから「契約履行終了まで」に変更したので、削除してよい。

Reference	Particular Safety Specification Requirements
JSSS 1.21 Skill Training	The Particular Safety Specification shall state whether the Contractor is allowed to bring into the Country for use upon the Works any unqualified, unskilled or inexperienced foreign Contractor's Personnel. ~~The Particular Safety Specification shall specify for example:~~ ~~(1) Requirements for teachers.~~ ~~(2) That the Contractor shall design syllabi to compliment the candidates' skill group, their work and position at the Site.~~ ~~(3) In addition to skill training, syllabi shall include health and safety training to an international level of appreciation with a general introduction to OSHA and other international safety standards and regulations.~~ ~~(4) Requirements for testing of candidates for example that the Contractor shall test candidates upon completion of their course, prepare and issue certificates of attendance and successful completion of each course.~~ ~~(5)~~(1)
JSSS 1.22.10 Hazardous Substances	After Site survey and investigation has been carried out by the Executing Agency during the design stage and if it is considered that there is any likelihood of the existence of Hazardous Substances at the Site of the Works or in any existing buildings and structures, the results of the survey shall be included in the Particular Safety Specification. If the Contractor is required to remove, the Employer's requirements for removal and disposal shall be clearly specified.
JSSS 1.24 Accident Response Plan	Although the Contract places obligations upon the Contractor under GC6.7 [Health and Safety], the Particular Safety Specification shall include a listing and description of any particular services and facilities that the Contractor is required to provide at the Site in addition to those already described in the Conditions of Contract. This is particularly relevant where the Site is located at an excessive distance from urban areas and/or where there is a lack of immediate availability of medical facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel on the Site. The circumstances shall be investigated by Executing Agencies during the design stage and full requirements shall be clearly described in the Bidding Documents. Such additional facilities at the Site could for example include: (1) Enhanced medical staff with qualified doctor(s). (2) Enhanced first aid and treatment facilities and staff.

コメントの追加 [伊藤2]: 1 は JSSS1.19 に記述あり。2 と 4 は既に JSSS1.21 に記述あり。3 は JSSS1.21 の本文に移すようコメント済です。

Reference	Particular Safety Specification Requirements
	(3) Enhanced medical equipment, medical supplies, medicines and drugs. (4) Additional treatment and recovery rooms. (5) An equipped ambulance based at the Site with qualified driver and attenders. (6) Where transfer time by road can exceed required time for major trauma injuries from the Site to trauma treatment centre, emergency air-ambulance evacuation services, shall also be considered in addition to the above. (7) Above items and facilities are available 7 days per week, 24 hours per day or during the normal working hours stated in the Contract Data, etc. The Particular Safety Specification shall state whether the medical, first aid and related services and facilities at the Site are to be available for during the normal working hours stated in the Contract or for any longer times. If any facilities as required under the Contract or additional facilities as required by JSSS are required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking-Over Certificate then this shall be clearly specified in the Particular Safety Specification. All such facilities shall be described and fully specified. If any facilities are to be handed to the Employer then any related requirements for replacement, repair or renovation shall be described. The Particular Safety Specification shall also state whether the medical, first aid and related services and facilities at the Site for accidental injuries (or more) shall also be made available and whether free of charge or not to any accompanying family members of the Contractor's Personnel, the Employer's Personnel and the family members of any other persons who are entitled to be on the Site ~~and other places (if any) where the Works are being executed~~.
JSSS 1.29 Project Safety Committee	On large Projects with multiple contract packages, the Executing Agency may consider that an overall Project Safety Committee should be established to manage and coordinate all of the various contracts comprised in the Project.
JSSS 1.30 Health and Safety Coordination with Other Contractors, (refer also to GC 2.3 [*Employer's Personnel*])	The Particular Safety Specification shall describe the scope of work of any other contractors to be employed by the Employer on the Site and where possible identify them by name. The Particular Safety Specification shall also describe the scope of work of any legally constituted public authorities and any third parties who may be employed by either the Employer or by the Contractor to execute work on or near the Site and identify them by name.

Reference	Particular Safety Specification Requirements
JSSS 1.36 Health Matters	Although the Contract places obligations upon the Contractor under GC6.7 [*Health and Safety*], the Particular Safety Specification should include a listing and description of any particular services and facilities that the Contractor is required to provide at the Site for health control in addition to those already described in the Contract. The listing should also include accommodation, furniture and equipment for rest stations, restroom, dining facilities, canteens, sanitary facilities, recreational facilities, shower facilities, changing rooms, religious facilities if needed and the like together with a description of any requirements for use and for example whether facilities can be used by the Employer's Personnel and their families. This is particularly relevant where the Site is situated some distance away from urban areas and/or where there is a lack of immediate availability of suitable medical facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel, to compensate for any lack of available services or facilities or lack of any local health authorities. The circumstances shall be investigated by Executing Agencies and their consultants during the design stage and full requirements shall be clearly described in the Bidding Documents. The Executing Agency shall consider whether assignment of healthcare staff is required to be full time or part time and this shall be clearly stated in the Particular Safety Specification. The Particular Safety Specification shall state whether the services and facilities specified are to be available during the normal working hours stated in the Contract or for any longer times. If any facilities ~~as required~~ under the Contract or additional facilities ~~as required~~ by JSSS are required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking-Over Certificate then this shall be clearly specified in the Particular Safety Specification. All such facilities shall be described and fully specified. If any facilities are to be handed to the Employer, any requirements for replacement, repair or renovation shall be described. The Particular Safety Specification shall also state whether the services and facilities at the Site shall also be made available and whether free of charge or not, to any accompanying family members of the Contractor's Personnel, or to the Employer's Personnel or to the family members of any other persons who are entitled to be on the Site and other places (if any) where the Works are being executed.

コメントの追加 [YM3]: 前回のバージョンから削除されていますが、残しておいた方がよいと考えます。

Reference	Particular Safety Specification Requirements
JSSS 1.37 Design and Management of Temporary Works	As a standard requirement, the Particular Safety Specification shall require the Contractor to comply with BS5975 [Code of Practice for temporary works procedures and the permissible design of false work] (latest issue) or approved equivalent for the design and management of Temporary Works. If the Contractor is NOT required to comply with BS5975, the Particular Safety Specification shall state this and also state that the Contractor is still required to comply in any event with the specified requirements of JSSS 1.37 and submit full details in the Safety Plan.
JSSS 1.38 Unexploded Ordnance (UXO)	If there is a known possibility that any UXO may exist at the Site, then this shall be surveyed and investigated by the Executing Agency before Bids are requested. The result of this investigation shall be clearly stated and full information including survey and investigation results shall be provided by the Executing Agency in the Particular Safety Specification. Clearance of UXO shall be undertaken by the Executing Agency as a condition precedent to commencement under GCC 8.1 [*Commencement of Works*], by the agency's own arrangements and at their own cost. Clearance shall be carried out by specialist government organisations, forces or contractor(s) that are appropriately and specifically qualified, skilled and experienced in the safe and environmentally acceptable removal and disposal of UXO, engaged directly by the Executing Agency. Completion of clearance shall be evidenced through the issue by the Executing Agency's specialist remover of a certificate of UXO clearance from the Site area. A copy of this certificate shall be provided to the Engineer and the Contractor. No work shall commence in relevant areas of the Site until the receipt by the Engineer and Contractor of a copy of this certificate. Should the Contractor encounter any UXO, after a clearance certificate has been issued in accordance with the above, he shall immediately stop all affected work at Site, clear the affected area of all Contractor's Personnel, Employer's Personnel and all other persons and notify the Engineer and relevant authorities. Unless otherwise agreed with the Contractor, the Employer shall then make further arrangements for removal and disposal, then obtain and issue a further clearance certificate. Work shall resume in the affected areas after the Contractor has received a copy ~~i~~of the further clearance certificate together with any further instructions from the Engineer.
JSSS 2.1.1 Hazardous Substances	If there is a known possibility that any Hazardous Substances may exist at the Site this shall be stated and full details provided of all likely hazards in the Particular Safety Specification.
JSSS 2.1.2 (~~3~~5)	If there is a known possibility that asbestos in any of its various forms may exist at the Site (for example in existing buildings,

Reference	Particular Safety Specification Requirements
Asbestos	structures or installations or which has been disposed of or buried at the Site then this shall be surveyed and investigated by the Executing Agency using a specialist qualified consultant/contractor before Bids are requested. The result of this investigation shall be clearly stated and full information including survey and investigation results shall be provided in the Particular Safety Specification. If possible, removal and disposal of this asbestos shall be undertaken by the Executing Agency before commencement of the Works by the Executing Agency's own arrangements and at their own cost. Removal and disposal shall be carried out by a specialist that is appropriately and specifically qualified, skilled and experienced in the safe and environmentally acceptable removal and disposal of asbestos, engaged directly by the Executing Agency. Completion of removal and disposal shall be evidenced through the issue by the specialist of a suitable certificate. A copy of this certificate shall be provided to the Engineer and the Contractor. No work shall commence at the Site until the receipt by the Engineer and Contractor of a copy of this certificate. Should the Contractor encounter any asbestos, after a clearance certificate has been issued in accordance with the above, he shall immediately stop all affected work at Site, clear the affected area of all Contractor's Personnel, Employer's Personnel and all other persons and notify the Engineer and relevant authorities. Unless otherwise agreed between the Employer and Contractor, the Engineer shall issue an appropriate Variation under GC 13 [*Variations and Adjustments*]. If removal is to be undertaken by the Contractor, this shall be stated in the Particular Safety Specification with full details and drawings of the extent and requirements for removal and disposal. Separate pay items shall be included in the Bill of Quantities to allow pricing of the removal and disposal with separate ~~lump sum~~ items given for mobilisation and removal of resources and approximate quantities given for the area of asbestos.
JSSS 2.1.7 (6) to (13)~~6.1.3~~ Monitoring and Records ~~the Performance of Temporary Works~~	The Contractor shall monitor any vibration, settlement and other adverse effects arising out of the execution of the Works to ascertain if these are causing any adverse effect to the Works or to Other Properties whilst ensuring that no damage or weakening is caused.~~The Contractor is required under this clause of JSSS, to monitor the Temporary Works to demonstrate that they are performing safely, to the designed limits and for the intended purpose.~~ ~~The Contractor is further required under the same clause of JSSS *"to monitor any vibration, settlement and other potentially damaging effects arising out of the execution of the Works to ascertain if these are causing any adverse effect to ground,*~~

コメントの追加 [伊藤4]: Lump sum に限定する必要は必ずしもないと思います。

コメントの追加 [伊藤5]: 6.1.3 から移動

Reference	Particular Safety Specification Requirements
	~~*buildings, structures and other properties, paved areas, roads, footpaths, fences, railways, waterways, drainage, utilities or any other property on the Site or outside the Site (collectively referred to in this Section as "other properties") to ensure that no damage or weakening is caused to such other properties."*~~ If there is a risk that the execution of the Works may cause any damage to any "O~~o~~ther p~~P~~roperties" ~~(as referred to in JSSS 6.1.3)~~ and if the Executing Agency considers that particular requirements for monitoring equipment, locations and methods are necessary, then these shall be specified in the Particular Safety Specification. The methods may include for example the inclusion of monitoring criteria in the Particular Safety Specification to assist the Contractor in establishing his own procedures for monitoring to avoid any damage to ~~o~~Other ~~p~~Properties. If these particular requirements are included, it is important also to state in the relevant clause of the Particular Safety Specification that the requirements are the minimum only and that compliance with such requirements shall not relieve the Contractor from any responsibility he has under the Contract including responsibility to execute the Works without causing any damage to ~~o~~Other ~~p~~Properties.
JSSS 2.2.2 Working Area Perimeter	The Particular Safety Specification shall describe the required working area perimeter showing the extent, dimensions, constructional details and specification, whether temporary or permanent. This shall also be shown on the Drawings. Requirements for permanent or temporary fencing or barriers within the Site shall be described and shown for example around areas where Dangerous Work is being carried out. Gates, barriers and other measures at Site entrances shall be described together with any arrangements for communications, lighting and power supply. Requirements for security at the Site entrance and also around the Site shall be described and whether these are to be provided by the Contractor or the Employer.
JSSS 2.2.6 Community Relations	If the Contractor is required, to assist the Employer with maintaining community relations, for example conducting traffic safety and awareness activities for the local community, this shall be described in the Particular Safety Specification and full details of requirements shall be specified.
~~JSSS 2.3.1~~ ~~Prohibition of Entry - Dangerous Work~~	~~If there is a known possibility that any Dangerous Work will be necessary this shall be stated and full details provided of all likely hazards in the Particular Safety Specification.~~ ~~If the scope of Works includes any work to be performed in Operational Areas, then a list of such works and a full description of the nature and conditions of operations shall be included in the~~

コメントの追加 [伊藤6]: すべての Dangerous Work を発注者が提示することは不可能であり、また保険の話なども Dangerous Work に限定するのも唐突感があるため、全体を削除します。

Reference	Particular Safety Specification Requirements
	~~Particular Safety Specification. Any requirements and restrictions on the Contractor's working methods and times and any special access, safety or other arrangements shall be further described in detail.~~ ~~The respective responsibilities for insurance, health and safety management, security, health and welfare facilities, etc., between the Employer and Contractor(s) shall be clearly described so that there is no doubt over what each party is to perform or provide.~~ ~~A copy of the Employer's working procedures, including their health and safety procedures shall be provided to Bidders for their study during the Bidding period.~~
JSSS 2.8 Fire Prevention	Although the Contract places obligations upon the Contractor for care of the Works, the Particular Safety Specification should include a listing and description of any particular fire-fighting and rescue services and facilities that the Contractor is required to provide at the Site. This is particularly relevant where the Site is situated some distance away from urban areas and/or where there is a lack of immediate availability of suitable fire-fighting and rescue facilities, or where such facilities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel, to compensate for any lack of available services or facilities or lack of any local health authorities. The circumstances shall be investigated by Executing Agencies during the design stage and full requirements shall be clearly specified in the Particular Safety Specification. Such additional facilities at the Site could for example include: (1) An equipped fire engine based at the Site with qualified driver and crew selected from the workers at the Site. (2) Sufficient temporary water and power supply to maintain emergency use. (3) Additional PPE for the fire-fighting and rescue team. (4) Enhanced fire protection equipment and facilities around the Site. (5) Above items are available 7 days per week, 24 hours per day or during the normal working hours stated in the Contract Data, etc. Where applicable, details shall be provided in the Particular Safety Specification for the selection, training and equipping of emergency fire-fighting teams selected from existing Contractor's Personnel at the Site, who in addition to their normal work, shall be called upon immediately in the event of any fire, to rescue any person(s) who may become trapped or injured or otherwise affected

Reference	Particular Safety Specification Requirements
	or incapacitated by fire and to provide suitable, specialist and appropriate first aid and medical treatment. Without limiting the Contractor's obligations, the Particular Safety Specification shall describe the particular scope of fire prevention services that are to be provided by the Contractor for the Works. If any facilities as required under the Contract or additional facilities as required by JSSS are required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking-Over Certificate then this shall be clearly specified in the Particular Safety Specification. All such facilities shall be described and fully specified. If any facilities are to be handed to the Employer, any requirements for replacement, repair or renovation shall be described.
JSSS Chapter 3 Existing Underground, Concealed and Overhead Services	The Particular Safety Specification shall describe the required extent of any work required in connection with any existing Underground, Concealed or Overhead Services, with details and specification and this shall also be shown on the Drawings. If any such services are the property of the Employer, this shall be stated clearly and the route, size, purpose of each shall be described and shown. If these services are to remain live and functional throughout the Time for Completion of the Works or if they are to be removed and if so by whom shall also be described. If any of these services are the property of a legally constituted public authority or a third party, this shall be stated clearly and the owner, route, size, purpose of each shall be described and shown. A copy of the regulations of the legally constituted public authority or third party shall be provided in the Particular Safety Specification or made available with the Bidding documents If services are to remain live and functional throughout the Time for Completion of the Works or if they are to be removed and if so by whom, (i.e. the authority or third party or the Contractor) shall also be described. The Particular Safety Specification shall also describe or include the procedures and requirements (including responsibility for insurance and safety procedures) of the authority or third party if the Contractor is to carry out the work.
JSSS 4.7 Temporary Fuelling Facilities	If fuel storage and dispensing arrangements are existing at the Site and are available for the Contractor's temporary use upon the Works then this shall be specified in the Particular Safety Specification and the requirements for use shall be described. When applicable, ~~Otherwise,~~ the Contractor shall design and construct temporary fuel storage and dispensing facilities at the Site for the use of Contractor's Equipment. If there are any restrictions upon the provision and use of such facilities, then these shall be described in the Particular Safety Specification.

Reference	Particular Safety Specification Requirements
JSSS 6.1.1 Design and Provision of Temporary Works Generally	In accordance with JSSS 1.37 [Design and Management of Temporary Works], the Contractor is generally required to comply with the requirements of Sections 1 and 2 of BS5975: Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework or an equivalent alternative standard. On exceptionally small projects or projects which do not demand the provision of complex temporary supporting or load bearing falsework and the like, the following alternative requirements may apply and if so, the following shall be included in the Particular Safety Specification: The Contractor shall demonstrate by description in the Safety Plan that he has effective arrangements in place for controlling risks arising from the design, selection of materials, components and equipment, use, management, dismantling and removal of Temporary Works including for example, by ensuring the following: (1) Appointment of appropriately qualified and experienced staff. (2) Preparation of adequate Temporary Works designs. (3) Independent internal or external checking of the Temporary Works Design. (4) Preparation of a Temporary Works register and records (5) Pre-erection inspection of all Temporary Works, including materials, components and equipment. (6) Control and supervision of the Temporary Works erection, safe use, maintenance and dismantling of the Temporary Works, including procedures to: (a) Check that the Temporary Works have been erected in accordance with the design and issue by the HSO of a suitable sign showing it as complete and safe to use; and (b) Confirm when the Permanent Works have attained adequate strength to allow dismantling of the Temporary Works and issue by the HSO of a suitable sign showing that it is ready for dismantling. In accordance with JSSS 1.18 [Proper Placement of Contractor's Personnel], the Contractor shall ensure that the design, erection, maintenance, dismantling and removal of Temporary Works, are all carried out by competent and experienced persons and in a controlled and closely supervised manner.
~~JSSS 6.1.2~~ ~~Monitoring the Performance of Temporary Works~~	~~The Contractor is required under this clause of JSSS, to monitor the Temporary Works to demonstrate that they are performing safely, to the designed limits and for the intended purpose.~~

コメントの追加 [大場7]: BS の表現にあるのだと思いますが、これだけだとよく分からない可能性があります。意味が分かるようにもう少し具体的に記述してください。

コメントの追加 [伊藤8]: 2.1.7 へ移動

Reference	Particular Safety Specification Requirements
	~~The Contractor is further required under the same clause of JSSS *"to monitor any vibration, settlement and other potentially damaging effects arising out of the execution of the Works to ascertain if these are causing any adverse effect to ground, buildings, structures and other properties, paved areas, roads, footpaths, fences, railways, waterways, drainage, utilities or any other property on the Site or outside the Site (collectively referred to in this Section as "other properties") to ensure that no damage or weakening is caused to such other properties."*~~ ~~If there is a risk that the execution of the Works may cause any damage to any "other properties" (as referred to in JSSS 6.1.3) and if the Executing Agency considers that particular requirements for monitoring equipment, locations and methods are necessary, then these shall be specified in the Particular Safety Specification. The methods may include for example the inclusion of monitoring criteria in the Particular Safety Specification to assist the Contractor in establishing his own procedures for monitoring to avoid any damage to other properties.~~ **~~If these particular requirements are included, it is important also to state in the relevant clause of the Particular Safety Specification that the requirements are the minimum only and that compliance with such requirements shall not relieve the Contractor from any responsibility he has under the Contract including responsibility to execute the Works without causing any damage to other properties.~~**
JSSS 6.2 Earthwork Support	For monitoring requirements, refer to the above reference in this table to JSSS 2.1.7~~6.1.3~~ [*Monitoring and Records~~the Performance of Temporary Works~~*].
JSSS 6.3 Cofferdams	For monitoring requirements, refer to the above reference in this table to JSSS 2.1.7 [*Monitoring and Records*].~~6.1.3 [*Monitoring the Performance of Temporary Works*].~~
JSSS 7.1.2 Monitoring of Excavation Works and Surroundings	For monitoring requirements, refer to the above reference in this table to JSSS 2.1.7 [*Monitoring and Records*].~~7.1.2 [*Monitoring of Excavation Works and Surroundings*].~~
JSSS 7.2 Particular Safety Measures	In accordance with JSSS 7.2, the Contractor shall be responsible for choosing manual or machine excavation, selecting types of Contractor's Equipment, types of Temporary Works, Earthwork Support, spoil removal, storage and handling, controlling ground and surface water, forming embankments and cuttings and the like. If there are any known and specific requirements or restrictions to be placed upon the Contractor for methods of excavation, types of equipment, Temporary Works Earthwork Support, spoil removal,

Reference	Particular Safety Specification Requirements
	storage and handling, controlling ground and surface water, forming embankments, cuttings and the like, then this shall be stated in the Particular Safety Specification and the requirements shall be specified.
JSSS 7.6.1 Scope	If the scope of Works includes Blasting Works for tunnelling which is presently not included in the scope of JSSS, full safety requirements shall be specified in the Particular Safety Specification.
JSSS7.6.2 General Blasting Requirements	If Blasting Works are not allowable then this shall be stated in the Particular Safety Specification and any requirements and restrictions shall be specified.
JSSS 7.6.11 Monitoring Impact of Blasting Works on Other Properties	~~If the scope of Works includes Blasting Works for tunnelling which is presently not included in the scope of JSSS, full requirements shall be specified in the Particular Safety Specification.~~ ~~If Blasting Works are not allowable then this shall be stated in the Particular Safety Specification and any requirements and restrictions shall be specified.~~ For monitoring requirements, refer to the above reference in this table to JSSS 2.1.7 *[Monitoring and Records]*.~~7.6.11 [*Monitoring Impact of Blasting Works on Other Properties*]~~.
JSSS 8.2.8 Monitoring Impact of Foundation Piling Works on Other Properties	For monitoring requirements, refer to the above reference in this table to JSSS 2.1.7 *[Monitoring and Records]*.~~8.2.8 [*Monitoring Impact of Foundation Piling Works on Other Properties*]~~.
JSSS 10.~~5.2~~7 Diving Accident Response Plan~~Workboat~~	If there are any special requirements for communications with the Dive Team, these shall also be described. ~~If the scope of Works includes Diving Works, and if there are any requirements and restrictions then these shall be described in the Particular Safety Specification.~~ If there is a decompression chamber or medical support facilities existing at or near to the diving site and is available for the use of the Contractor then this shall be stated and the type, specification and capacity shall be specified together with any requirements and restrictions for use. ~~If a separate rescue boat is recommended to be provided and moored alongside the workboat for assisting with recovery of Divers who are in difficulty or have drifted away from position then this shall be stated and full requirements shall be specified.~~

コメントの追加 [JICA9]: モニタリングじゃないので、これだと参照元は
7.6.2General Blasting Requirements
b)Where it is not specifically prohibited by the Particular Safety Specification; and
なのでは（ARA）

コメントの追加 [伊藤11]: 漠としすぎている。

コメントの追加 [JICA10]: 10.7.2Provisions by the Contractor
(3) The Contractor shall provide rescue and safety equipment, an emergency aid contact list, a first-aid kit and supplies. The rescue and safety equipment including decompression facilities, first-aid kit and supplies provided at the dive location shall be appropriate for the Diving Works and approved by a physician. 参照先はここじゃないか？（ARA）

コメントの追加 [伊藤12]: これは 10.5.2 ではなく、10.7 に対応しています。

コメントの追加 [伊藤13]: 不要。10.5.2（3）の記述は Unless otherwise specified in the Particular Safety Specification, the Contractor shall provide a separate small boat for rescue at the workboat・・・であり、この UG の記述と対応していない。

Reference	Particular Safety Specification Requirements
	~~If there are any special requirements for communications with the Dive Team, these shall also be described.~~
GC 6.6 Facilities for ~~Contractor's and Employer's Personnel~~Staff and Labour	The Particular Safety Specification shall describe any necessary accommodation and welfare facilities that the Contractor is to provide for the Contractor's Personnel and whether such facilities or further facilities are also to be provided for the Employer's Personnel and others. If any land area is available at the Site for such facilities this shall be stated and shown and any requirements and restrictions shall be described. The Particular Safety Specification shall describe the required scope, design, constructional details and specification, whether temporary or permanent and this shall also be shown on the Drawings. If such facilities are required, the Particular Safety Specification shall describe in detail: (1) Responsibility and scope of maintenance, repair and cleaning of such facilities as necessary to maintain them in a clean, habitable, hygienic and safe condition, including garbage removal and disposal, rodent and insect control and the like. (2) Responsibility for and scope of potable water supply, water and power supply, waste water and sewage drainage and treatment. (3) Whether such facilities are required to be provided during the Defects Notification Period (4) Whether such facilities are to be removed by the Contractor or are to be handed over to the Employer on issue of the Taking-Over Certificate and if so in what condition. The extent of provision by the Contractor shall take due account of the nature and location of the Site and the condition of access thereto, with a higher range and standard of facilities being provided in remote locations to promote good health, hygiene, comfort, welfare and safety of all users and occupants.

コメントの追加 [伊藤14]: これは関連付けるとすれば10.6.1（5）とかだと思いますので切り分けました。

コメントの追加 [伊藤15]: GC のタイトルは Facilities for Staff and Labour

3. BILL OF QUANTITIES

3.1 Incorporation of JSSS Requirements

(1) The Bills of Quantities to be prepared by the Executing Agency for the purposes of the Bidding Documents, Section IV. Bidding Forms shall include separate pay items to cover the main component parts of JSSS.

(2) The Executing Agency shall prepare a Bill of Quantities in accordance with the JICA Standard Bidding Document in order:

(a) to provide the facility for the Contractor to include the cost of JSSS compliance in his Bid; and

(b) to provide a basis for the preparation of Statements as part of the Contractor's application for payment under GC 14 [*Contract Price and Payment*] together with the Project Safety Specification (including JSSS).

(3) Appropriate pay items shall be included in Bill No. 1 - General Items, to cover all principal components of the Safety Specification, such as:

(a) Assignment of HSO with supporting staff and provision of safety management activities (JSSS 1.13);

(b) Skill Training (JSSS 1.21);

(c) Accident Response Facilities (JSSS 1.24);

(d) Emergency Response Plan (JSSS 1.26);

(e) Health Facilities (JSSS 1.36);

(f) Design and Management of Temporary Works (JSSS 1.37); and

(g) Fire Prevention (JSSS 2.8).

(4) The Pay items for the above shall be separated into lump sum and monthly payment items generally in accordance with the following table:

Ref	Description	Establishment and removal of facilities (sum)	Provision of Services (month)
(a)	Assignment of HSO with supporting staff and provision of safety management activities		✔
(b)	Skill Training	*Awaiting further Information*	*Awaiting further Information*
(c)	Accident Response Facilities	✔	✔
(d)	Emergency Response Plan	*Awaiting further Information*	*Awaiting further Information*
(e)	Health Facilities	✔	✔

コメントの追加 [JICA16]: 意味がわからない　検討中という意味？　（ARA）

(f)	Design and Management of Temporary Works		✔
(g)	Fire Prevention	✔	✔

Note: The above quantity (expressed in months) shall be of the required period for provision which usually will not exceed the Time for Completion. Any services required during the Defects Notification Period to oversee completion of outstanding work and remedying defects shall usually be at the Contractor's own cost.

(5) Appropriate pay items shall be included in other Bills of Quantities with relevant quantities, unit rates and sums for other parts of JSSS according to the particular scope of the Works for example removal of known hazardous substances, Blasting Work and Diving Works.

No.	Items	JICA Comments	NK Explanation/Actions	Proposal for Final UG
1.	1.7 Sound Working Environment	1.7 …This shall be accomplished by working closely together with the Contractor and issuing appropriate ~~advisories~~ advices (JC3) or instructions to the Contractor… JC3: replaced.	英語の使用上の観点から原案を提案致します。 MD: “advices” is not correct English, original is correct as “advisory” generally means official advice given in writing”. “advice” could be used if for any reason you feel that this is a problem.	英語の使用上の観点から原案に戻すことを提案します。
2.	JSSS 1.36 Health Matters	The Executing Agency shall consider whether assignment of healthcare staff is required to be full time or part time and this shall be clearly stated in the Particular Safety Specification. (JC12) JC12: 前回のバージョンから削除されていますが、残しておいた方がよいと考えます。 We consider this should be recovered though this was deleted from last version.	請負者の義務に制限を加えることになるため、(例えばパートタイムとすると規定した場合、GC7 の要求事項と異なることになります。)、追加しないことを提案致します。 MD: We do not recommend this change as it effectively places a limit on the Contractor’s obligations under the Contract. The Contractor has a prevailing obligation under GC 6.7 to provide whatever is reasonably necessary and to make suitable arrangements. We recommend that the Employer should not pre-judge and state in the PSS whether these obligations can be achieved with part-time services.	追加しないことを提案します。
3.	JSSS 2.3.1 Prohibition of Entry - Dangerous Work (JC19)	~~If there is a known possibility that any Dangerous Work will be necessary this shall be stated and full details provided of all likely hazards in the Particular Safety Specification.~~ ~~If the scope of Works includes any work to be performed in Operational Areas, then a list of such works and a full description of the nature and conditions of operations shall be included in the Particular Safety Specification. Any requirements and restrictions on the Contractor’s working methods and times and any special access, safety or other arrangements shall be further described in detail.~~ ~~The respective responsibilities for insurance, health and safety management, security, health and welfare facilities, etc., between the Employer and Contractor(s) shall be clearly described so that there is no doubt over what each party is to perform or provide.~~ ~~A copy of the Employer’s working procedures,~~	例えば、発注者が操業中の浄水処理施設の一部で工事を行うような契約の場合、操業区域(Operational Area)に危険な場所があるときは、発注者はその区域への請負者に立入りを禁止するなどを JSS に記述することが安全対策上必要と考えます。そのため、原案を復活させられることを提案致します。 MD Why deleted? This is really important in Operational Areas such as existing water or sewage treatment plants where the Contractor has to perform work of upgrading, renovation or tie-in whilst the Employer continues to operate. This is often the case for example, on JICA funded water treatment projects (power generation and distribution also). The Employer really **must** fully describe the above otherwise the Contractor cannot be aware of his obligations, work methods, safety management and compliance, programme, etc., etc., and actually cannot prepare a meaningful Bid.	原案を残すこと提案します。

		~~including their health and safety procedures shall be provided to Bidders for their study during the Bidding period.~~ (JC19) JC19: deleted.		
4.	JSSS 2.8 Fire Prevention	(5) Above items are (JC20) available 7 days per week, 24 hours per day or during the normal working hours stated in the Contract Data, etc. JC20 added.	“facilities”への変更を提案致します。 MD: If to be changed suggest that “facilities” is more appropriate than “items”.	“facilities”への変更を提案します。
5.	JSSS 6.1.1 Design and Provision of Temporary Works Generally	(4) Preparation of a Temporary Works register (JC23) and records JC23: BS の表現にあるのだと思いますが、これだけだとよく分からない可能性があります。意味が分かるようにもう少し具体的に記述してください。 We think this is mentioned in BS, however there is a possibility this cannot be understood. Please specify a little more concretely this.	下記へ変更を提案致します。 “(4) Preparation of a written record, listing all Temporary Works with supporting details.” MD: “register” is simple and in very common use. Otherwise try: above.	左記への変更を提案します。
6.	3.1 Incorporation of JSSS Requirements (2) (b)	(b) to provide a basis for the preparation of Statements as part of the Contractor’s application for payment under GC 14 [*Contract Price and Payment*] together with the Project Safety Specification (including JSSS). (JC33) JC33: added.	追記の意図が良く分かりませんため、具体的にどのようなものをいとされているか例示いただけないでしょうか。 MD: What is the intention or meaning?	具体的な例示をお願いします。
7.	3.1 Incorporation of JSSS Requirements (4) (b) & (d)	Awaiting further Information(JC34) JC34: The meaning cannot be understood.	これは NK から MD 氏への追加情報が必要の意味でした。 (b)と(d)の両方の欄に✔を入れます。 MD: Please refer to the comments in our previous report. Better still I suggest just put a tick in both boxes.	✔を入れます。

黄色網掛部分:NK の対応説明一覧表に記載の部分です。最終案の作成のため、貴機構からの最終指示(NK の提案への合意、又は記述の変更等の指示)をお願い致します。コメント欄の番号は、別紙 A2 の一覧表の番号です。

For Final by JICA/NK

JICA STANDARD SAFETY SPECIFICATION FOR PROJECT IMPLEMENTATION UNDER JAPANESE ODA

GUIDE FOR USE OF EXECUTING AGENCIES

Japan International Cooperation Agency (JICA)

29th August 2020

Prepared: DCI for NK
Issue: FR2
Date: 29/08/2020

JICA STANDARD SAFETY SPECIFICATION (JSSS)
GUIDE FOR USE OF EXECUTING AGENCIES

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JICA STANDARD SAFETY SPECIFICATION (JSSS)
GUIDE FOR USE OF EXECUTING AGENCIES

Section 1 INTRODUCTION

1.1 General

(1) This guide is prepared and issued for the information and assistance of Executing Agencies and (where applicable) their consultants for use in the preparation of Bidding and Contract Documents for Projects where such agencies have agreed with JICA that JSSS shall be adopted.

(2) Reference to "Executing Agencies" in this guide shall be deemed to include their consultants that have been appointed to provide design stage services in accordance with JICA requirements.

(3) If the user has questions regarding the use of JSSS, the appropriate JICA official should be consulted.

(4) This guide is for information only and will not form a part of any Contract for the execution of any Works.

(5) Definitions and abbreviations used in this guide shall be the same as in JSSS.

1.2 Objective of JSSS

(1) As noted in JSSS, JICA requires that all parties engaged in their ODA Projects shall endeavour to establish and maintain a culture ensuring human security and the maintenance of human rights as an essential and fundamental feature.

(2) The common objective shall be the achievement of a zero-accident rate on the Works, adopting the slogan of "Safety First" by creating a working environment where health and safety are of the highest priority.

(3) To assist with achieving this objective, JICA has published the JICA Standard Safety Specification (referred to as "JSSS"), which JICA wishes to be adopted for the Projects to be financed by JICA.

1.3 Effectiveness

Where the parties to a Loan Agreement have specifically agreed to adopt JSSS for a new Project, JSSS shall become effective and be used by Executing Agencies as the technical basis for Health and Safety management on that Project.

1.4 Content

(1) JSSS specifies the minimum health and safety requirements to be complied with by the Contractor throughout the execution of the Works.

(2) JSSS contains general rules for health and safety management with procedural requirements for the preparation, submission, review and response processes for Method Statements and Safety Plans to encourage the safe execution of the Works. JSSS further describes the involvement of the Employer, Engineer and other contractors, and provides requirements for general administration and management of health and safety.

1.5 Applicability

(1) JSSS has been developed to apply to Japanese ODA Loan Projects based upon the Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer (Multilateral Development Bank Harmonised Edition, June 2010) published by Fédération Internationale des Ingénieurs-Conseils (FIDIC).

(2) JSSS may apply equally to other JICA assisted Projects that have been awarded under different forms of contract. When so used, suitable modification shall be made to the

definitions and text of JSSS and the Bidding Documents for those Projects to ensure compatibility and consistency with the relevant contract requirements for the Project, reflecting the same intentions, standards and procedures for improving health and safety.

1.6 Incorporation of JSSS into Bids and Contracts

Where the parties to a Loan Agreement have specifically agreed to adopt JSSS for a Project, the Bidding Documents shall clearly state that Bids will be requested on the basis that JSSS is adopted.

1.7 Sound Working Environment

Safe construction sites are created from a sound working environment. JICA emphasise the importance of the Executing Agency assisting in the pursuit of a zero-accident rate on the Works, for example by creating a safe working environment for the Works, by including sufficient time for Bidding, reasonable Time(s) for Completion; reasonable, continuous and unobstructed access to the Site, reasonably detailed data on sub-surface and hydrological conditions at the Site, sufficient area(s) for the Site (including, working and storage areas) and the like, wherever possible.

JICA also believes that a sound working environment is enhanced by reasonable contract management by each Party to the Contract. While the responsibility to maintain health and safety at the Site lies with the Contractor, the Employer and Employer's Personnel are expected to be proactive for the Works to be executed under the slogan of "SAFETY FIRST" (refer to JSSS 1.1 [*Safety Declaration*]). This shall be accomplished by working closely together with the Contractor and issuing appropriate advice or instructions to the Contractor whenever any situation affecting safety matters is identified.

1.8 Cost of Compliance with Health and Safety Requirements

The Executing Agency should recognise that sound health and safety measures incur reasonable expense, the amount of which shall be taken into consideration when the cost estimate is prepared for any Project. Some measures shall be included in the BOQ as individual pay items which, through payment during the execution of the Contract, will give the Contractor the incentive to comply with the health and safety requirements in the Contract (refer to Section 3 Bill of Quantities for more detail).

Furthermore, the cost estimate prepared by the Executing Agency should be based on a practical construction method in the given natural and social environment (e.g. Temporary Works to be used). Such construction method shall be a reasonable one, which would be generally adopted to comply with the safety and health requirements imposed in the Contract, whether the corresponding pay items are given in the BOQ or not. The Executing Agency would, by doing so, be able to avoid cost underestimate, which will hinder the progress of implementation of the Project.

1.9 Structure of Specification

(1) JSSS shall be included as a part of the Specification for the Works as illustrated in the following Table 1.1 [*Incorporation of JSSS into Bid and Contract Documents*]. The Specification for the Works shall be subdivided into two (2) parts namely:

  (a) The Safety Specification (including JSSS); and

  (b) Other parts of the Specification which shall comprise the specification for the general and technical aspects of the Works, excluding requirements for health and safety.

(2) The Safety Specification shall consist of two (2) parts namely:

  (a) Part 1: JICA Standard Safety Specification (JSSS):

  Comprising JSSS as issued at the Base Date of the Contract.

(b) Part 2: Particular Safety Specification:

Comprising a schedule containing the particular additions and modifications to JSSS, necessary to create a precise and relevant specification for the health and safety requirements for the Project.

Table 1.1: Incorporation of JSSS into Bid and Contract Documents

List of Contract Documents and Sequence of Priority **GC 1.5 [*Priority of Documents*]:**
1. the Contract Agreement (*if any*), 2. the Letter of Acceptance, 3. the Letter of Tender, 4. the Particular Conditions - Part A, 5. the Particular Conditions - Part B, 6. the General Conditions, 7. the Specification: (1) the Safety Specification: (i) the Particular Safety Specification; and (ii) JSSS (2) General and Technical Specification: *(no fixed content but usually containing the following)* (i) General Requirements; (ii) Site Preparation; (iii) Concrete Works; and (iv) Others. 8. the Drawings, and 9. the Schedules and any other documents forming part of the Contract.
Specification Priorities:
1. Within the Safety Specification, the Particular Safety Specification shall have priority over JSSS; and 2. The Safety Specification shall have priority over the other parts of the Specification in respect of health and safety matters.

1.10 Drafting of Particular Safety Specification

(1) As JSSS is a specification of minimum requirements for compliance by the Contractor, there shall be no substantial deletion or alteration of JSSS requirements in the Particular Safety Specification unless so justified due to the scope of the Works.

(2) When additional or different safety requirements are to be applied due to Project specific requirements, these requirements shall be developed and included in the Particular Safety Specification.

(3) Executing Agencies shall take care when they prepare other parts of the Specification and other parts of the Bidding Documents where JSSS is to be adopted, to ensure that there is no duplication of or contradiction to the health and safety requirements contained in the Project Safety Specification.

1.11 Use for Ongoing Projects

(1) Unless otherwise agreed between JICA and the Executing Agency, JSSS shall not be automatically used on all JICA funded Projects, JSSS shall only be used when it becomes effective on the particular ODA Project as described in this guide, in Clause 1.3 [*Effectiveness*].

(2) Where JSSS is already in use on any Project and by further agreement between JICA and the Executing Agency, future issues/revisions of JSSS may be applied after the date that such future issues/revisions are published on line subject to issue by the Engineer of an appropriate Variation under GC 13.1 [*Right to Vary*].

1.12 JICA Standard Bidding Documents

(1) JICA intend to amend and re-issue the “Standard Bidding Documents Under Japanese ODA Loans, Procurement of Works”, published by the Japan International Cooperation Agency (JICA) (hereinafter referred to as “JSBD”) to cover the required amendments to accommodate JSSS.

(2) In order that JSSS can be used without delay and where so agreed to be used on particular Projects, the Bidding Documents for such Projects shall be drafted to take account of this guide in advance of publication of the next issue of JSBD.

(3) The form of “Safety Plan” in JSBD Section IV. Bidding Forms shall include an explanatory note to the Bidders to inform them that they shall submit a safety plan in their bid in accordance with JSSS Annex 1.2, “Bid Stage Safety Plan”.

(4) The HSO shall be specified as one of the key personnel to be evaluated in JSBD Section III. Evaluation and Qualification Criteria.

(5) The Bidders Safety Declaration shall be added in JSBD Section IV Bidding Forms.

Section 2 PARTICULAR SAFETY SPECIFICATION

2.1 Drafting Generally

(1) The Particular Safety Specification shall be carefully and precisely drafted, amending the various general requirement Clauses of JSSS by adding particular requirements to ensure that the scope is precisely specified and so that the Contractor's obligations are clear and unambiguous.

(2) The amendments shall cover the examples listed in the table in Clause 2.2 below, noting that this listing is not exhaustive.

(3) The use in JSSS of the phrase "specified in the Particular Safety Specification" shall mean that either full requirements shall be specified in the Particular Safety Specification or, that reference shall be made in the Particular Safety Specification to other particular parts of the Specification or other documents comprised in the Contract, where full requirements are so specified.

2.2 Particular Requirements

In addition to the requirements described in this guide in Clause 2.1 [*Drafting Generally*], the Executing Agency shall consider the requirement to amend and/or supplement any Clauses of JSSS including those listed as examples in the following Table 2.1 [*Sample Requirements for the Particular Safety Specification*].

Table 2.1: Sample Requirements for the Particular Safety Specification

Reference	Requirements
JSSS 1.12 Health and Safety Officer at the Site (HSO)	Refer to JSSS 1.12 [*Health and Safety Officer at the Site (HSO)*] where the minimum required period of experience and types of qualification for the HSO are described. If different periods of experience or qualifications are legal requirements under the Laws of the Country, then these shall be clearly stated in the Particular Safety Specification. The general requirement in JSSS is that the HSO shall be assigned full-time upon the Works and spend all of his time on health and safety management. JICA advise that such full-time assignment is the normal requirement and part-time or shared assignment is only allowable on extremely small Projects or when part-time or shared assignment is justified with particular reasons. If the justification for part-time or shared assignment is acceptable to JICA, the agreed requirements shall be clearly stated in the Particular Safety Specification.
JSSS 1.21 Skill Training	The Particular Safety Specification shall state whether the Contractor is allowed to bring into the Country for use upon the Works any unqualified, unskilled or inexperienced foreign Contractor's Personnel.
JSSS 1.22 Dangerous Work	If there is a known possibility that any Dangerous Work will be necessary this shall be stated and full details provided of all likely hazards in the Particular Safety Specification.

コメントの追加 [SS1]: No.1
別紙 B1 の一覧表の番号 No.1 です。

Reference	Requirements
	If the scope of the Works includes any work to be performed in Operational Areas, then a list of such works and a full description of the nature and conditions of operations shall be included in the Particular Safety Specification. Any requirements and restrictions on the Contractor's working methods and times and any special access, safety or other arrangements shall be further described in detail. The respective responsibilities for insurance, health and safety management, security, health and welfare facilities, etc., between the Employer and Contractor(s) shall be clearly described so that there is no doubt over what each party is to perform or provide. A copy of the Employer's working procedures, including their health and safety procedures shall be provided to Bidders for their study during the Bidding period.
JSSS 1.22.11 Hazardous Substances	After Site survey and investigation has been carried out by the Executing Agency during the design stage and if it is considered that there is any likelihood of the existence of Hazardous Substances at the Site of the Works or in any existing buildings and structures, the results of the survey shall be included in the Particular Safety Specification. If removal is to be undertaken by the Contractor, this shall be stated in the Particular Safety Specification with full details and drawings of the extent and requirements for removal and disposal.
JSSS 1.24 Accident Response Plan	Although the Contract places obligations upon the Contractor under GC6.7 [*Health and Safety*], the Particular Safety Specification shall include a listing and description of any particular services and facilities that the Contractor is required to provide at the Site in addition to those already described in the Conditions of Contract. This is particularly relevant where the Site is located at an excessive distance from urban areas and/or where there is a lack of immediate availability of medical facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel on the Site. The circumstances shall be investigated by Executing Agencies during the design stage and full requirements shall be clearly described in the Bidding Documents. Such additional services and facilities at the Site could for example include: (1) Enhanced medical staff with qualified doctor(s). (2) Enhanced first aid and treatment facilities and staff.

コメントの追加 [SS2]: No. 2

Reference	Requirements
	(3) Enhanced medical equipment, medical supplies, medicines and drugs. (4) Additional treatment and recovery rooms. (5) An equipped ambulance based at the Site with qualified driver and attenders. (6) Where transfer time by road can exceed required time for major trauma injuries from the Site to trauma treatment centre, emergency air-ambulance evacuation services, shall also be considered in addition to the above. (7) Above services and facilities are available seven (7) days per week, twenty-four (24) hours per day or during the normal working hours stated in the Contract Data, etc. The Particular Safety Specification shall state whether the medical, first aid and related services and facilities at the Site are to be available for during the normal working hours stated in the Contract or for any longer times. If any services and facilities under the Contract or additional services and facilities by JSSS are required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking-Over Certificate then this shall be clearly specified in the Particular Safety Specification. All such services and facilities shall be described and fully specified. If any facilities are to be handed to the Employer then any related requirements for replacement, repair or renovation shall be described. The Particular Safety Specification shall also state whether the medical, first aid and related services and facilities at the Site for accidental injuries (or more) shall also be made available and whether free of charge or not to any accompanying family members of the Contractor's Personnel, the Employer's Personnel and the family members of any other persons who are entitled to be on the Site.
JSSS 1.29 Project Safety Committee	On large Projects with multiple contract packages, the Executing Agency may consider that an overall Project Safety Committee should be established to manage and coordinate all of the various contracts comprised in the Project.
JSSS 1.30 Health and Safety Coordination with Other Contractors, (refer also to GC 2.3 [*Employer's Personnel*])	The Particular Safety Specification shall describe the scope of work of any other contractors that may be employed by the Employer on or near the Site and where possible identify them by name. The Particular Safety Specification shall also describe the scope of work of any legally constituted public authorities and any third parties that may be employed by the Employer to execute work on or near the Site and identify them by name.

Reference	Requirements
JSSS 1.36 Health Matters	Although the Contract places obligations upon the Contractor under GC6.7 [*Health and Safety*], the Particular Safety Specification should include a listing and description of any particular services and facilities that the Contractor is required to provide at the Site for health control in addition to those already described in the Contract. The listing should also include accommodation, furniture and equipment for rest stations, restroom, dining facilities, canteens, sanitary facilities, recreational facilities, shower facilities, changing rooms, religious facilities if needed and the like together with a description of any requirements for use and for example whether such services and facilities can be used by the Employer's Personnel and their families. This is particularly relevant where the Site is situated some distance away from urban areas and/or where there is a lack of immediate availability of suitable healthcare services and facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel, to compensate for any lack of available services or facilities or lack of any local health authorities. The circumstances shall be investigated by Executing Agencies and their consultants during the design stage and full requirements shall be clearly described in the Bidding Documents. The Particular Safety Specification shall state whether the services and facilities specified are to be available during the normal working hours stated in the Contract or for any longer times. If any services and facilities under the Contract or additional services and facilities by JSSS are required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking-Over Certificate then this shall be clearly specified in the Particular Safety Specification. All such facilities shall be described and fully specified. If any facilities are to be handed to the Employer, any requirements for replacement, repair or renovation shall be described. The Particular Safety Specification shall also state whether the services and facilities at the Site shall also be made available and whether free of charge or not, to any accompanying family members of the Contractor's Personnel, or to the Employer's Personnel or to the family members of any other persons who are entitled to be on the Site.
JSSS 1.37 Design and Management of Temporary Works	As a standard requirement, the Particular Safety Specification shall require the Contractor to comply with BS5975 [Code of Practice for temporary works procedures and the permissible design of false work] (latest issue) or approved equivalent for the design and management of Temporary Works.

コメントの追加 **[SS3]:** No. 3

Reference	Requirements
	If the Contractor is NOT required to comply with BS5975, the Particular Safety Specification shall state this and also state that the Contractor is still required to comply in any event with the specified requirements of JSSS 1.37 [*Design and Management of Temporary Works*] and submit full details in the Safety Plan.
JSSS 1.38 Unexploded Ordnance (UXO)	If there is a known possibility that any UXO may exist at the Site, then this shall be surveyed and investigated by the Executing Agency before Bids are requested. The result of this investigation shall be clearly stated and full information including survey and investigation results shall be provided by the Executing Agency in the Particular Safety Specification. Clearance of UXO shall be undertaken by the Executing Agency as a condition precedent to commencement under GC 8.1 [*Commencement of Works*], by the agency's own arrangements and at their own cost. Clearance shall be carried out by specialist government organisations, forces or contractor(s) that are appropriately and specifically qualified, skilled and experienced in the safe and environmentally acceptable removal and disposal of UXO, engaged directly by the Executing Agency. Completion of clearance shall be evidenced through the issue by the Executing Agency's specialist remover of a certificate of UXO clearance from the Site area. A copy of this certificate shall be provided to the Engineer and the Contractor. No work shall commence in relevant areas of the Site until the receipt by the Engineer and Contractor of a copy of this certificate. Should the Contractor encounter any UXO, after a clearance certificate has been issued in accordance with the above, he shall immediately stop all affected work at Site, clear the affected area of all Contractor's Personnel, Employer's Personnel and all other persons and notify the Engineer and relevant authorities. Unless otherwise agreed with the Contractor, the Employer shall then make further arrangements for removal and disposal, then obtain and issue a further clearance certificate. Work shall resume in the affected areas after the Contractor has received a copy of the further clearance certificate together with any further instructions from the Engineer.
JSSS 2.1.1 Hazardous Substances	If there is a known possibility that any Hazardous Substances may exist at the Site this shall be stated and full details provided of all likely hazards in the Particular Safety Specification.
JSSS 2.1.2 (4) Asbestos	If there is a known possibility that asbestos in any of its various forms may exist at the Site (for example in existing buildings, structures or installations or which has been disposed of or buried at the Site) then this shall be surveyed and investigated by the Executing Agency using a specialist qualified consultant/contractor before Bids are requested. The result of this investigation shall be

Reference	Requirements
	clearly stated and full information including survey and investigation results shall be provided in the Particular Safety Specification. If possible, removal and disposal of this asbestos shall be undertaken by the Executing Agency before commencement of the Works by the Executing Agency's own arrangements and at their own cost. Removal and disposal shall be carried out by a specialist that is appropriately and specifically qualified, skilled and experienced in the safe and environmentally acceptable removal and disposal of asbestos, engaged directly by the Executing Agency. Completion of removal and disposal shall be evidenced through the issue by the specialist of a suitable certificate. A copy of this certificate shall be provided to the Engineer and the Contractor. No work shall commence at the Site until the receipt by the Engineer and Contractor of a copy of this certificate. Should the Contractor encounter any asbestos, after a clearance certificate has been issued in accordance with the above, he shall immediately stop all affected work at Site, clear the affected area of all Contractor's Personnel, Employer's Personnel and all other persons and notify the Engineer and relevant authorities. Unless otherwise agreed between the Employer and Contractor, the Engineer shall issue an appropriate Variation under GC 13 [*Variations and Adjustments*]. If removal is to be undertaken by the Contractor, this shall be stated in the Particular Safety Specification with full details and drawings provided, showing the extent and requirements for removal and disposal. Separate pay items shall be included in the Bill of Quantities to allow pricing of the removal and disposal with separate lump sum items given for mobilisation and removal of resources and approximate quantities given for the area of asbestos.
JSSS 2.1.7 (6) to (13) Monitoring and Records	The Contractor shall monitor any vibration, settlement and other adverse effects arising out of the execution of the Works to ascertain if these are causing any adverse effect to the Works or to Other Properties whilst ensuring that no damage or weakening is caused. If there is a risk that the execution of the Works may cause any damage to "Other Properties" and if the Executing Agency considers that particular requirements for monitoring equipment, locations and methods are necessary, then these shall be specified in the Particular Safety Specification. The methods may include for example the inclusion of monitoring criteria in the Particular Safety Specification to assist the Contractor in establishing his own procedures for monitoring, to avoid any damage to Other Properties.

Reference	Requirements
	If these particular requirements are included, it is important also to state in the relevant Clause of the Particular Safety Specification that the requirements are the minimum only and that compliance with such requirements shall not relieve the Contractor from any responsibility that he has under the Contract including responsibility to execute the Works without causing any damage to Other Properties.
JSSS 2.2.2 Working Area Perimeter	The Particular Safety Specification shall describe the required working area perimeter showing the extent, dimensions, constructional details and specification of any fencing or barriers, whether temporary or permanent. This is particularly required where any Dangerous Work is known to be required. Full information shall also be shown on the Drawings. Gates, barriers and other measures at Site entrances shall be described together with any arrangements for communications, lighting and power supply. Requirements for security at the Site entrance and also around the Site shall be described and whether these are to be provided by the Contractor or the Employer.
JSSS 2.2.6 Community Relations	The Particular Safety Specification shall require the Contractor to assist the Employer with creating and maintaining community relations, for example conducting traffic safety and awareness activities for the local community. Full details of requirements shall be specified.
JSSS 2.8 Fire Prevention	Although the Contract places obligations upon the Contractor for care of the Works, the Particular Safety Specification should include a listing and description of any particular fire-fighting and rescue services and facilities that the Contractor is required to provide at the Site. This is particularly relevant where the Site is situated some distance away from urban areas and/or where there is a lack of immediate availability of suitable fire-fighting and rescue services and facilities, or where such services and facilities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel, to compensate for any lack of available services or facilities or lack of any local health authorities. The circumstances shall be investigated by Executing Agencies during the design stage and full requirements shall be clearly specified in the Particular Safety Specification.

コメントの追加 **[SS4]:** No. 4

Reference	Requirements
	Such additional services and facilities at the Site could for example include: (1) An equipped fire engine based at the Site with qualified driver and crew selected from the workers at the Site. (2) Sufficient temporary water and power supply to maintain emergency use. (3) Additional PPE for the fire-fighting and rescue team. (4) Enhanced fire protection equipment and facilities around the Site. (5) Above services and facilities are available seven (7) days per week, twenty-four (24) hours per day or during the normal working hours stated in the Contract Data, etc. Where applicable, details shall be provided in the Particular Safety Specification for the selection, training and equipping of emergency fire-fighting teams selected from existing Contractor's Personnel at the Site, who in addition to their normal work, shall be called upon immediately in the event of any fire, to rescue any person(s) who may become trapped or injured or otherwise affected or incapacitated by fire and to provide suitable, specialist and appropriate first aid and medical treatment. Without limiting the Contractor's obligations, the Particular Safety Specification shall describe the particular scope of fire prevention services that are to be provided by the Contractor for the Works. If any services and facilities as required under the Contract or additional facilities as required by JSSS are required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking-Over Certificate then this shall be clearly specified in the Particular Safety Specification. All such services and facilities shall be described and fully specified. If any facilities are to be handed to the Employer, any requirements for replacement, repair or renovation shall be described.
JSSS 3 Existing Underground, Concealed and Overhead Services	The Particular Safety Specification shall describe the required extent of any work required in connection with any existing Underground, Concealed or Overhead Services. Details and specification shall also be shown on the Drawings. If any such services are the property of the Employer, this shall be stated clearly and the route, size, purpose of each shall be described and shown. If these services are to remain live and functional throughout the Time for Completion of the Works or if they are to be removed and if so by whom shall also be described. If any of these services are the property of a legally constituted public authority or a third party, this shall be stated clearly and the owner, route, size, purpose of each shall be described and shown.

Reference	Requirements
	A copy of the regulations of the legally constituted public authority or third party shall be provided in the Particular Safety Specification or made available with the Bidding documents. If services are to remain live and functional throughout the Time for Completion of the Works or if they are to be removed and if so by whom, (i.e. the authority or third party or the Contractor) shall also be described. The Particular Safety Specification shall also describe or include the procedures and requirements (including responsibility for insurance and safety procedures) of the authority or third party if the Contractor is to carry out the work.
JSSS 4.7 Temporary Fuelling Facilities	If fuel storage and dispensing arrangements are existing at the Site and are available for the Contractor's temporary use upon the Works then this shall be specified in the Particular Safety Specification and the requirements for use shall be described. When applicable, the Contractor shall design and construct temporary fuel storage and dispensing facilities at the Site for the use in Contractor's Equipment. If there are any restrictions upon the provision and use of such facilities, then these shall be described in the Particular Safety Specification.
JSSS 6.1.1 Design and Provision of Temporary Works Generally	In accordance with JSSS 1.37 [*Design and Management of Temporary Works*], the Contractor is generally required to comply with the requirements of Sections 1 and 2 of BS5975: Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework or an equivalent alternative standard. On exceptionally small projects or projects which do not demand the provision of complex temporary supporting or load bearing falsework and the like, the following alternative requirements may apply and if so, the following shall be included in the Particular Safety Specification: *The Contractor shall demonstrate by description in the Safety Plan that he has effective arrangements in place for controlling risks arising from the design, selection of materials, components and equipment, use, management, dismantling and removal of Temporary Works including for example, by ensuring the following:* *(1) Appointment of appropriately qualified and experienced staff.* *(2) Preparation of adequate Temporary Works designs.* *(3) Independent internal or external checking of the Temporary Works Design.* *(4) Preparation of a written record, listing all Temporary Works with supporting details and dates.* *(5) Pre-erection inspection of all Temporary Works, including materials, components and equipment.*

コメントの追加 **[SS5]:** No. 5

Reference	Requirements
	(6) Control and supervision of the Temporary Works erection, safe use, maintenance and dismantling of the Temporary Works, including procedures to: *(a) Check that the Temporary Works have been erected in accordance with the design and issue by the HSO of a suitable sign showing it as complete and safe to use; and* *(b) Confirm when the Permanent Works have attained adequate strength to allow dismantling of the Temporary Works and issue by the HSO of a suitable sign showing that it is ready for dismantling.* *In accordance with JSSS 1.18 [Proper Placement of Contractor's Personnel], the Contractor shall ensure that the design, erection, maintenance, dismantling and removal of Temporary Works, are all carried out by competent and experienced persons and in a controlled and closely supervised manner.*
JSSS 6.2 Earthwork Support	For monitoring requirements, refer to the above reference in this table to JSSS 2.1.7 [*Monitoring and Records*].
JSSS 6.3 Cofferdams	For monitoring requirements, refer to the above reference in this table to JSSS 2.1.7 [*Monitoring and Records*].
JSSS 7.1.2 Monitoring of Excavation Works and Surroundings	For monitoring requirements, refer to the above reference in this table to JSSS 2.1.7 [*Monitoring and Records*].
JSSS 7.2 Particular Safety Measures	In accordance with JSSS 7.2 [*Particular Safety Measures*], the Contractor shall be responsible for choosing manual or machine excavation, selecting types of Contractor's Equipment, types of Temporary Works, Earthwork Support, spoil removal, storage and handling, controlling ground and surface water, forming embankments and cuttings and the like. If there are any known and specific requirements or restrictions to be placed upon the Contractor for methods of excavation, types of equipment, Temporary Works Earthwork Support, spoil removal, storage and handling, controlling ground and surface water, forming embankments, cuttings and the like, then this shall be stated in the Particular Safety Specification and the requirements shall be specified.
JSSS 7.6.1 Scope	If the scope of the Works includes Blasting Works for tunnelling (which is presently not included in the scope of JSSS), full safety requirements shall be specified in the Particular Safety Specification.

Reference	Requirements
JSSS7.6.2 General Blasting Requirements	If Blasting Works are not allowable then this shall be stated in the Particular Safety Specification and any requirements and restrictions shall be specified.
JSSS 7.6.10 Monitoring Impact of Blasting Works on Other Properties	For monitoring requirements, refer to the above reference in this table to JSSS 2.1.7 [*Monitoring and Records*].
JSSS 8.2.8 Monitoring Impact of Foundation Piling Works on Other Properties	For monitoring requirements, refer to the above reference in this table to JSSS 2.1.7 [*Monitoring and Records*].
JSSS 10.6.1 Measures before Diving Operations	If there are any special requirements for communications with the Dive Team, these shall also be described.
JSSS 10. 7 Diving Accident Response Plan	If there is a decompression chamber or medical support services and facilities existing at or near to the diving site and is available for the use of the Contractor then this shall be stated and the type, specification and capacity shall be specified together with any requirements and restrictions for use.
GC 6.6 Facilities for Staff and Labour	The Particular Safety Specification shall describe any necessary accommodation and welfare facilities that the Contractor is to provide for the Contractor's Personnel and whether such facilities or further facilities are also to be provided for the Employer's Personnel and others. If any land area is available at the Site for such facilities this shall be stated and shown and any requirements and restrictions shall be described. The Particular Safety Specification shall describe the required scope, design, constructional details and specification, whether temporary or permanent and this shall also be shown on the Drawings. If such facilities are required, the Particular Safety Specification shall describe in detail: (1) Responsibility and scope of maintenance, repair and cleaning of such facilities as necessary to maintain them in a clean, habitable, hygienic and safe condition, including garbage removal and disposal, rodent and insect control and the like.

Reference	Requirements
	(2) Responsibility for and scope of potable water supply, water and power supply, waste water and sewage drainage and treatment. (3) Whether such facilities are required to be provided during the Defects Notification Period. (4) Whether such facilities are to be removed by the Contractor or are to be handed over to the Employer on issue of the Taking-Over Certificate and if so in what condition. The extent of provision by the Contractor shall take due account of the nature and location of the Site and the condition of access thereto, with a higher range and standard of facilities being provided in remote locations to promote good health, hygiene, comfort, welfare and safety of all users and occupants.

Section 3 BILL OF QUANTITIES

3.1. Incorporation of JSSS Requirements

(1) The Bills of Quantities to be prepared by the Executing Agency for the purposes of the Bidding Documents, Section IV. Bidding Forms shall include separate pay items to cover the main component parts of JSSS.

(2) The Executing Agency shall prepare a Bill of Quantities in accordance with the JICA Standard Bidding Document in order to:

(a) Provide the facility for the Contractor to include the cost of JSSS compliance in his Bid; and

(b) Provide a basis for the preparation of Statements as part of the Contractor's application for payment under GC 14 [*Contract Price and Payment*].

コメントの追加 **[SS6]:** No. 6

(3) Appropriate pay items shall be included in Bill No. 1 - General Items, to cover all principal components of the Safety Specification, such as:

(a) Assignment of HSO with supporting staff and provision of safety management activities (JSSS 1.13);

(b) Skill Training (JSSS 1.21);

(c) Accident Response Plan (JSSS 1.24);

(d) Emergency Response Plan (JSSS 1.26);

(e) Health Matters (JSSS 1.36);

(f) Design and Management of Temporary Works (JSSS 1.37); and

(g) Fire Prevention (JSSS 2.8).

The Pay items for the above shall be separated into lump sum and monthly payment items generally in accordance with the following Table 3.1 [*Sample Pay Items in the Bill of Quantities*].

Table 3.1: Sample Pay Items in the Bill of Quantities

Ref	Description	Establishment and Removal of Facilities (Lump Sum)	Provision of Services (Month)
(a)	Assignment of HSO with supporting staff and provision of safety management activities		✔
(b)	Skill Training		✔
(c)	Accident Response Plan	✔	✔
(d)	Emergency Response Plan	✔	✔
(e)	Health Matters	✔	✔
(f)	Design and Management of Temporary Works		✔

コメントの追加 **[SS7]:** No. 7

(g)	Fire Prevention	✔	✔

Note: The above quantity for Provision of Services (expressed in months) shall be of the required period for provision which usually will not exceed the Time for Completion. Any services required during the Defects Notification Period to oversee completion of outstanding work and remedying defects shall usually be at the Contractor's own cost.

(4) Appropriate pay items shall be included in other Bills of Quantities with relevant quantities, unit rates and sums for other parts of JSSS according to the particular scope of the Works for example removal of known hazardous substances, Blasting Work and Diving Works.

USER GUIDE: 1st September 2020

DCI General Coordination and Editing (Issue 3)

Preamble Notes:

Similar to JSSS, now that this document is nearing completion we have the first real opportunity to carry out overall editing and coordination.

We have tried to improve the wording of the previous draft but have not generally prepared separate notes for each of the minor corrections and changes arising from this latest editing and coordination exercise. This has been accomplished in the clean copy but all changes have been shown in red fonts.

We suggest that this document be appended to your report so that JICA are fully informed of editing checks and coordination that have been carried out.

Editing Generally

Our latest exercise for coordination and editing has covered the following topics and items:

1) Structure and reference as follows:

   SECTION 1

   ("Section" has been used instead of Part to avoid duplication with other parts including 1.9 (2); "Chapters" seems too much for such a small document)

   1.1 Clause

2) Contents pages formatted and corrected
3) All cross references prefixed with "JSSS" contain no mention of "Chapter", "Section" or "Clause".
4) Within the User Guide, "Clause" is generally used for cross references.
5) All cross references have correct number and description.
6) Cross reference to Chapter do not contain full stop after number.
7) All paragraph headings (except "and", "in". "of" and the like) capitalised first letters
8) Punctuation checked.
9) All JSSS and GC cross reference descriptions in italics.
10) All main body text in Times New Roman 11, Document heading in TNR 12
11) Content page TNR 10 so that descriptions generally fit to one and line.
12) Headers TNR 9
13) Footers TNR 10
14) All text justified, clause and paragraph spacing plus 6 points
15) All comments and notes removed (JC, NK and MD)
16) Check for English - English

    e.g. authori**s**ed, organi**s**ation, specali**s**ed, stabili**s**ed etc. etc.)

17) Numbers added in text, e.g. twenty-eight (28) (to be consistent with JSSS/SAR JICA Accident Report and elsewhere)

Other particular changes:

1) "Part-time" not "part time"
2) "full-time" not "full time"
3) "GC" not "GCC"

4) “scope of the Works” (when referring to the entire scope of the main Contract Works), not “scope of Works.

5) “coordination” not “co-ordination” - please confirm there is only one hyphenated use in FIDIC, many non-hyphenated uses in JSSS

6) “services and facilities” not “facilities and services”

7) The phrase “and other places (if any) where the Works are being executed” is deleted

8) Laws “of the Country” left in as used in many cases although may not be necessary.

   Please refer our earlier explanation provided against item 1.2.2 finally as follows:

   "Please refer to FIDIC and also JICA Standard Bidding Documents, Section VIII. Particular Conditions (Part A: Contract Data). If the Contract is to be governed by the laws of another jurisdiction this should be stated in the Contract Data (under Governing Law, GC 1.4) …."

   GC 1.4: 1.4 Law and Language – "The Contract shall be governed by the law of the country or other jurisdiction stated in the Contract Data."

   If it is differently stated in the Contract data then JSSS will be inconsistent with the Contract

   We have not changed this throughout but please advise if a change is to be made to the numerous references in other parts of the document.

9) Please refer to Clause 1.1 (5)

   We have moved this to improve the sequence.

10) Please refer to Clause 1.9.(2) (b) 6.

    We suggest changing “these General Conditions” to “the General Conditions”.

    This is to correct an error due copying the clause from the GC where “these” is correct, however in the User Guide it requires change due to the context.

Changes in Table 2.1: Sample Requirements for the Particular Safety Specification

1) Refer to the reference for JSSS 1.22.11

   Final paragraph revised to be consistent with JSSS 2.1.2 (4) [*Asbestos*]

2) Refer to the reference for JSSS 1.22 [*Dangerous Work*]

   This was previously in JSSS 2.3.3 but was moved in JSSS to JSSS 1.22 under JICA Comment JC 126

   Please also to our comments in the separate draft document regarding the JICA request to omit this clause. We do not recommend for the reasons stated in the draft.

3) Refer to the reference to JSSS 2.2.2 [*Working Area Perimeter*]

   This has been modified to improve the wording.

4) Refer to the reference to JSSS 2.2.6 [*Community Relations*]

   This has been modified to make it a firm requirement and to improve the wording.

5) Refer to reference for JSSS 6.1.1 *[Design and Provision of Temporary Works Generally]*

   We have changed part to italics as this is a copy of suggested text to be included in the PSS.

   Sub-clause (4) is to replace the word “register”.

Previous Commented Draft

1) Please also refer to the latest Draft JSSS document with notes as attached, in which we have added some further notes.

No.	JSSS Clauses	JICA Comments (20200730) Mandatory to change, JC: JICA comments	NK Explanation/Actions	Proposal for Final UG	JICA コメント
1.	2.2 Table 2.1 1.22 Dangerous Work	-	1.22.1, 2.1.5, 2.4.2 (6)等で規定している Operational Areas 内での作業(例えば、下水処理用、浄水プラントや発電プラント等)で、Dangerous Work がある場合、発注者の操業中の場所内の請負者に作業の条件、時期等を、入札者が十分に理解できるように知らしめる必要があります。PSS にそれらを記述するために、次の 1.22 を追加することを提案致します。 MD explained: Work will often be required in existing operating plants (e.g. waste-water, water and power plants) as such it is essential for the Employer to inform the Contractor of the conditions, times etc in which he will be allowed to work. It is necessary therefore for the PSSS to specify works, location etc. of Dangerous Work in the Operational Area so that Bidders are fully informed. Therefore, NK proposed to add the following 1.22: 1.22 Dangerous Work If there is a known possibility that any Dangerous Work will be necessary this shall be stated and full details provided of all likely hazards in the Particular Safety Specification. If the scope of the Works includes any work to be performed in Operational Areas, then a list of such works and a full description of the nature and conditions of operations shall be included in the Particular Safety Specification. Any requirements and restrictions on the Contractor's working methods and times and any special access, safety or other arrangements shall be further described in detail. The respective responsibilities for insurance, health and safety management, security, health and welfare facilities, etc., between the Employer and Contractor(s) shall be clearly described so that there is no doubt over what each party is to perform or provide. A copy of the Employer's working procedures, including their health and safety procedures shall be provided to Bidders for their study during the Bidding period.	追加を提案致します。 We propose addition.	OK
2.	2.2 Table 2.1 1.22.11 Hazardous Substances	-	JSSS 2.1.2 (4) [*Asbestos*]の記述と統一するために、下記の追加の記述を提案致します。 MD explained: To make the wording consistent with later clause JSSS 2.1.2 (4) [*Asbestos*], it is suggested that this is revised as follows. There is no change in meaning: (Original) If the Contractor is required to remove, the Employer's requirements for removal and disposal shall be clearly specified. (Proposed) If removal is to be undertaken by the Contractor, this shall be stated in the Particular Safety Specification with full details and drawings of the extent and requirements for removal and disposal.	追加を提案致します。 We propose addition.	OK
3.	2.2 Table 2.1 JSSS 1.36 Health Matters	The Executing Agency shall consider whether assignment of healthcare staff is required to be full time or part time and this shall be clearly stated in the Particular Safety Specification. (JC12) JC12: 前回のバージョンから削除されていますが、	請負者は GC 6.8 を遵守して制限なく医療スタッフの役務や施設等を提供する義務があります。そのため、GC を変更することになる PSS での full time or part time の規定は不要と考えまして、JC12 の記述を追加しておりません。原案のままとすることを提案致します。 MD explained: The Contractor has a prevailing responsibility under GC 6.7 [Health and Safety] to provide whatever is necessary without limitation. We recommend that the Employer should not pre-judge and state in the PSS whether these obligations can be achieved with part-time services as this effectively	左欄の理由で原案を提案致します。 We propose to adopt the original sentence.	OK

		残しておいた方がよいと考えます。 We consider this should be recovered though this was deleted from last version.	changes the Contract. Therefore, we propose to adopt the original sentences without addition of JC 12.		
4.	2.2 Table 2.1 JSSS 2.2.2 Working Area Perimeter	-	説明を明確にすること及び具体的対策を説明するため、原案の赤字部分へ具体的対策を追加しました下記の案を提案致します。 MD explained: We propose to add concrete measures to the original to improve the original drafting and make the requirements clear. (Original) The Particular Safety Specification shall describe the required working area perimeter showing the extent, dimensions, constructional details and specification, whether temporary or permanent. This shall also be shown on the Drawings. (Proposed) The Particular Safety Specification shall describe the required working area perimeter showing the extent, dimensions, constructional details and specification of any fencing or barriers, whether temporary or permanent. This is particularly required where any Dangerous Work is known to be required. Full information shall also be shown on the Drawings.	左欄のような追加を提案致します。 We propose addition.	OK
5.	2.2 Table 2.1 JSSS 6.1.1 Design and Provision of Temporary Works Generally	(4) Preparation of a Temporary Works register (JC23) and records JC23: BS の表現にあるのだと思いますが、これだけだとよく分からない可能性があります。意味が分かるようにもう少し具体的に記述してください。 We think this is mentioned in BS, however there is a possibility this cannot be understood. Please specify a little more concretely this.	“register”を明確にするために、下記のような変更を提案致します。 MD explained: We propose to revise the sentence commented by JC23, as the meaning of “register” is not readily understandable, (4) Preparation of a written record, listing all Temporary Works with supporting details and dates.	左欄のように変更を提案致します。 We propose revision.	OK
6.	3.1 (2) (b)	(b) to provide a basis for the preparation of Statements as part of the Contractor’s application for payment under GC 14 [*Contract Price and Payment*] together with the Project Safety Specification (including JSSS). (JC33) JC33: added.	原案は、GC14 に基づき請求書を作成する明確な根拠を提供することと規定しています。コメントは、JSSS を含め Project SS と共に、GC14 に基づき請求書を作成する明確な根拠を提供するとの説明となります。追加の文章が十分に理解できませんでしたので、追加は行わないことを提案致します。 MD explained: The requirement is to provide a clear basis for payment. It is difficult to understand the added sentence, so we propose not to add this sentence.	原案とおりを提案致します。 We propose no revision.	MD 氏は純粋に支払い手続きのことをおっしゃっているのだと思いますが、JICA 側としては支払いの対象になるものはスペックに従っていなければならないということを申し上げています。従って、例えば下記のような表現を入れておくというのはいかがでしょうか。 The Statement shall be conforming to the Project Safety Specification.
7.	3.1 (3) Table 3.1: Sample Pay Items in the Bill of Quantities	Awaiting further Information(JC34) JC34: 意味がわからない。検討中という意味？ The meaning cannot be understood.	原案の記述は NK からの情報待ちの意味でした。最終案の必要な欄に✔マークを入れた案を提案しております。 The awaiting means MD was waiting for NK further information. We have revised by adding checkmark “✔” in some column.	記述を追加致しました。 We added “✔”.	具体的な例示を Table の欄外に脚注の形で追記ください。

MD suggestions
JICA comments for final on 20200911

For Final by
JICA/NK

JICA STANDARD SAFETY SPECIFICATION FOR PROJECT IMPLEMENTATION UNDER JAPANESE ODA

GUIDE FOR USE OF EXECUTING AGENCIES

Japan International Cooperation Agency (JICA)

17th September 2020

Prepared: DCI for NK
Issue: FR3
Date: 17/09/2020

JICA STANDARD SAFETY SPECIFICATION (JSSS)
GUIDE FOR USE OF EXECUTING AGENCIES

Table of Contents

JICA STANDARD SAFETY SPECIFICATION (JSSS)
GUIDE FOR USE OF EXECUTING AGENCIES

Section 1 INTRODUCTION

1.1 General

(1) This guide is prepared and issued for the information and assistance of Executing Agencies and (where applicable) their consultants for use in the preparation of Bidding and Contract Documents for Projects where such agencies have agreed with JICA that JSSS shall be adopted.

(2) Reference to "Executing Agencies" in this guide shall be deemed to include their consultants that have been appointed to provide design stage services in accordance with JICA requirements.

(3) If the user has questions regarding the use of JSSS, the appropriate JICA official should be consulted.

(4) This guide is for information only and will not form a part of any Contract for the execution of any Works.

(5) Definitions and abbreviations used in this guide shall be the same as in JSSS.

1.2 Objective of JSSS

(1) As noted in JSSS, JICA requires that all parties engaged in their ODA Projects shall endeavour to establish and maintain a culture ensuring human security and the maintenance of human rights as an essential and fundamental feature.

(2) The common objective shall be the achievement of a zero-accident rate on the Works, adopting the slogan of "Safety First" by creating a working environment where health and safety are of the highest priority.

(3) To assist with achieving this objective, JICA has published the JICA Standard Safety Specification (referred to as "JSSS"), which JICA wishes to be adopted for the Projects to be financed by JICA.

1.3 Effectiveness

Where the parties to a Loan Agreement have specifically agreed to adopt JSSS for a new Project, JSSS shall become effective and be used by Executing Agencies as the technical basis for Health and Safety management on that Project.

1.4 Content

(1) JSSS specifies the minimum health and safety requirements to be complied with by the Contractor throughout the execution of the Works.

(2) JSSS contains general rules for health and safety management with procedural requirements for the preparation, submission, review and response processes for Method Statements and Safety Plans to encourage the safe execution of the Works. JSSS further describes the involvement of the Employer, Engineer and other contractors, and provides requirements for general administration and management of health and safety.

1.5 Applicability

(1) JSSS has been developed to apply to Japanese ODA Loan Projects based upon the Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer (Multilateral Development Bank Harmonised Edition, June 2010) published by Fédération Internationale des Ingénieurs-Conseils (FIDIC).

(2) JSSS may apply equally to other JICA assisted Projects that have been awarded under different forms of contract. When so used, suitable modification shall be made to the

definitions and text of JSSS and the Bidding Documents for those Projects to ensure compatibility and consistency with the relevant contract requirements for the Project, reflecting the same intentions, standards and procedures for improving health and safety.

1.6 Incorporation of JSSS into Bids and Contracts

Where the parties to a Loan Agreement have specifically agreed to adopt JSSS for a Project, the Bidding Documents shall clearly state that Bids will be requested on the basis that JSSS is adopted.

1.7 Sound Working Environment

Safe construction sites are created from a sound working environment. JICA emphasise the importance of the Executing Agency assisting in the pursuit of a zero-accident rate on the Works, for example by creating a safe working environment for the Works, by including sufficient time for Bidding, reasonable Time(s) for Completion; reasonable, continuous and unobstructed access to the Site, reasonably detailed data on sub-surface and hydrological conditions at the Site, sufficient area(s) for the Site (including, working and storage areas) and the like, wherever possible.

JICA also believes that a sound working environment is enhanced by reasonable contract management by each Party to the Contract. While the responsibility to maintain health and safety at the Site lies with the Contractor, the Employer and Employer's Personnel are expected to be proactive for the Works to be executed under the slogan of "SAFETY FIRST" (refer to JSSS 1.1 [*Safety Declaration*]). This shall be accomplished by working closely together with the Contractor and issuing appropriate advice or instructions to the Contractor whenever any situation affecting safety matters is identified.

1.8 Cost of Compliance with Health and Safety Requirements

The Executing Agency should recognise that sound health and safety measures incur reasonable expense, the amount of which shall be taken into consideration when the cost estimate is prepared for any Project. Some measures shall be included in the BOQ as individual pay items which, through payment during the execution of the Contract, will give the Contractor the incentive to comply with the health and safety requirements in the Contract (refer to Section 3 Bill of Quantities for more detail).

Furthermore, the cost estimate prepared by the Executing Agency should be based on a practical construction method in the given natural and social environment (e.g. Temporary Works to be used). Such construction method shall be a reasonable one, which would be generally adopted to comply with the safety and health requirements imposed in the Contract, whether the corresponding pay items are given in the BOQ or not. The Executing Agency would, by doing so, be able to avoid cost underestimate, which will hinder the progress of implementation of the Project.

1.9 Structure of Specification

(1) JSSS shall be included as a part of the Specification for the Works as illustrated in the following Table 1.1 [*Incorporation of JSSS into Bid and Contract Documents*]. The Specification for the Works shall be subdivided into two (2) parts namely:

  (a) The Safety Specification (including JSSS); and

  (b) Other parts of the Specification which shall comprise the specification for the general and technical aspects of the Works, excluding requirements for health and safety.

(2) The Safety Specification shall consist of two (2) parts namely:

  (a) Part 1: JICA Standard Safety Specification (JSSS):

  Comprising JSSS as issued at the Base Date of the Contract.

(b) Part 2: Particular Safety Specification:

Comprising a schedule containing the particular additions and modifications to JSSS, necessary to create a precise and relevant specification for the health and safety requirements for the Project.

Table 1.1: Incorporation of JSSS into Bid and Contract Documents

List of Contract Documents and Sequence of Priority GC 1.5 [*Priority of Documents*]:
1. the Contract Agreement (*if any*), 2. the Letter of Acceptance, 3. the Letter of Tender, 4. the Particular Conditions - Part A, 5. the Particular Conditions - Part B, 6. the General Conditions, 7. the Specification: (1) the Safety Specification: (i) ~~the~~ Particular Safety Specification; and (ii) JSSS (2) the General and Technical Specification: *(no fixed content but usually containing the following)* (i) General Requirements; (ii) Site Preparation; (iii) Concrete Works; and (iv) Others. 8. the Drawings, and 9. the Schedules and any other documents forming part of the Contract.
Specification Priorities:
1. Within the Safety Specification, the Particular Safety Specification shall have priority over JSSS; and 2. The Safety Specification shall have priority over the other parts of the Specification in respect of health and safety matters.

コメントの追加 [SS1]: To MD: I cannot know how to use "the".
In the explanation PPT, JICA deleted "the". Can I delete "the" for PSS?

コメントの追加 [MJD2R1]: Good comment, please see my suggestion opposite.

1.10 Drafting of Particular Safety Specification

(1) As JSSS is a specification of minimum requirements for compliance by the Contractor, there shall be no substantial deletion or alteration of JSSS requirements in the Particular Safety Specification unless so justified due to the scope of the Works.

(2) When additional or different safety requirements are to be applied due to Project specific requirements, these requirements shall be developed and included in the Particular Safety Specification.

(3) Executing Agencies shall take care when they prepare other parts of the Specification and other parts of the Bidding Documents where JSSS is to be adopted, to ensure that there is no duplication of or contradiction to the health and safety requirements contained in the Project Safety Specification.

1.11 Use for Ongoing Projects

(1) Unless otherwise agreed between JICA and the Executing Agency, JSSS shall not be automatically used on all JICA funded Projects, JSSS shall only be used when it becomes effective on the particular ODA Project as described in this guide, in Clause 1.3 [*Effectiveness*].

(2) Where JSSS is already in use on any Project and by further agreement between JICA and the Executing Agency, future issues/revisions of JSSS may be applied after the date that such future issues/revisions are published on line subject to issue by the Engineer of an appropriate Variation under GC 13.1 [*Right to Vary*].

1.12 JICA Standard Bidding Documents

(1) JICA intend to amend and re-issue the “Standard Bidding Documents Under Japanese ODA Loans, Procurement of Works”, published by the Japan International Cooperation Agency (JICA) (hereinafter referred to as “JSBD”) to cover the required amendments to accommodate JSSS.

(2) In order that JSSS can be used without delay and where so agreed to be used on particular Projects, the Bidding Documents for such Projects shall be drafted to take account of this guide in advance of publication of the next issue of JSBD.

(3) The form of “Safety Plan” in JSBD Section IV. Bidding Forms shall include an explanatory note to the Bidders to inform them that they shall submit a safety plan in their bid in accordance with JSSS Annex 1.2, “Bid Stage Safety Plan”.

(4) The HSO shall be specified as one of the key personnel to be evaluated in JSBD Section III. Evaluation and Qualification Criteria.

(5) The Bidders Safety Declaration shall be added in JSBD Section IV Bidding Forms.

Section 2 PARTICULAR SAFETY SPECIFICATION

2.1 Drafting Generally

(1) The Particular Safety Specification shall be carefully and precisely drafted, amending the various general requirement Clauses of JSSS by adding particular requirements to ensure that the scope is precisely specified and so that the Contractor's obligations are clear and unambiguous.

(2) The amendments shall cover the examples listed in the table in Clause 2.2 below, noting that this listing is not exhaustive.

(3) The use in JSSS of the phrase "specified in the Particular Safety Specification" shall mean that either full requirements shall be specified in the Particular Safety Specification or, that reference shall be made in the Particular Safety Specification to other particular parts of the Specification or other documents comprised in the Contract, where full requirements are so specified.

2.2 Particular Requirements

In addition to the requirements described in this guide in Clause 2.1 [*Drafting Generally*], the Executing Agency shall consider the requirement to amend and/or supplement any Clauses of JSSS including those listed as examples in the following Table 2.1 [*Sample Requirements for the Particular Safety Specification*].

Table 2.1: Sample Requirements for the Particular Safety Specification

Reference	Requirements
JSSS 1.12 Health and Safety Officer at the Site (HSO)	Refer to JSSS 1.12 [*Health and Safety Officer at the Site (HSO)*] where the minimum required period of experience and types of qualification for the HSO are described. If different periods of experience or qualifications are legal requirements under the Laws of the Country, then these shall be clearly stated in the Particular Safety Specification. The general requirement in JSSS is that the HSO shall be assigned full-time upon the Works and spend all of his time on health and safety management. JICA advise that such full-time assignment is the normal requirement and part-time or shared assignment is only allowable on extremely small Projects or when part-time or shared assignment is justified with particular reasons. If the justification for part-time or shared assignment is acceptable to JICA, the agreed requirements shall be clearly stated in the Particular Safety Specification.
JSSS 1.21 Skill Training	The Particular Safety Specification shall state whether the Contractor is allowed to bring into the Country for use upon the Works any unqualified, unskilled or inexperienced foreign Contractor's Personnel.
JSSS 1.22 Dangerous Work	If there is a known possibility that any Dangerous Work will be necessary this shall be stated and full details provided of all likely hazards in the Particular Safety Specification.

Reference	Requirements
	If the scope of the Works includes any work to be performed in Operational Areas, then a list of such works and a full description of the nature and conditions of operations shall be included in the Particular Safety Specification. Any requirements and restrictions on the Contractor's working methods and times and any special access, safety or other arrangements shall be further described in detail. The respective responsibilities for insurance, health and safety management, security, health and welfare facilities, etc., between the Employer and Contractor(s) shall be clearly described so that there is no doubt over what each party is to perform or provide. A copy of the Employer's working procedures, including their health and safety procedures shall be provided to Bidders for their study during the Bidding period.
JSSS 1.22.11 Hazardous Substances	After Site survey and investigation has been carried out by the Executing Agency during the design stage and if it is considered that there is any likelihood of the existence of Hazardous Substances at the Site of the Works or in any existing buildings and structures, the results of the survey shall be included in the Particular Safety Specification. If removal is to be undertaken by the Contractor, this shall be stated in the Particular Safety Specification with full details and drawings of the extent and requirements for removal and disposal.
JSSS 1.24 Accident Response Plan	Although the Contract places obligations upon the Contractor under GC6.7 [*Health and Safety*], the Particular Safety Specification shall include a listing and description of any particular services and facilities that the Contractor is required to provide at the Site in addition to those already described in the Conditions of Contract. This is particularly relevant where the Site is located at an excessive distance from urban areas and/or where there is a lack of immediate availability of medical facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel on the Site. The circumstances shall be investigated by Executing Agencies during the design stage and full requirements shall be clearly described in the Bidding Documents. Such additional services and facilities at the Site could for example include: (1) Enhanced medical staff with qualified doctor(s). (2) Enhanced first aid and treatment facilities and staff.

Reference	Requirements
	(3) Enhanced medical equipment, medical supplies, medicines and drugs. (4) Additional treatment and recovery rooms. (5) An equipped ambulance based at the Site with qualified driver and attenders. (6) Where transfer time by road can exceed required time for major trauma injuries from the Site to trauma treatment centre, emergency air-ambulance evacuation services, shall also be considered in addition to the above. (7) Above services and facilities are available seven (7) days per week, twenty-four (24) hours per day or during the normal working hours stated in the Contract Data, etc. The Particular Safety Specification shall state whether the medical, first aid and related services and facilities at the Site are to be available for during the normal working hours stated in the Contract or for any longer times. If any services and facilities under the Contract or additional services and facilities by JSSS are required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking-Over Certificate then this shall be clearly specified in the Particular Safety Specification. All such services and facilities shall be described and fully specified. If any facilities are to be handed to the Employer then any related requirements for replacement, repair or renovation shall be described. The Particular Safety Specification shall also state whether the medical, first aid and related services and facilities at the Site for accidental injuries (or more) shall also be made available and whether free of charge or not to any accompanying family members of the Contractor's Personnel, the Employer's Personnel and the family members of any other persons who are entitled to be on the Site.
JSSS 1.29 Project Safety Committee	On large Projects with multiple contract packages, the Executing Agency may consider that an overall Project Safety Committee should be established to manage and coordinate all of the various contracts comprised in the Project.
JSSS 1.30 Health and Safety Coordination with Other Contractors, (refer also to GC 2.3 [*Employer's Personnel*])	The Particular Safety Specification shall describe the scope of work of any other contractors that may be employed by the Employer on or near the Site and where possible identify them by name. The Particular Safety Specification shall also describe the scope of work of any legally constituted public authorities and any third parties that may be employed by the Employer to execute work on or near the Site and identify them by name.

Reference	Requirements
JSSS 1.36 Health Matters	Although the Contract places obligations upon the Contractor under GC6.7 [*Health and Safety*], the Particular Safety Specification should include a listing and description of any particular services and facilities that the Contractor is required to provide at the Site for health control in addition to those already described in the Contract. The listing should also include accommodation, furniture and equipment for rest stations, restroom, dining facilities, canteens, sanitary facilities, recreational facilities, shower facilities, changing rooms, religious facilities if needed and the like together with a description of any requirements for use and for example whether such services and facilities can be used by the Employer's Personnel and their families. This is particularly relevant where the Site is situated some distance away from urban areas and/or where there is a lack of immediate availability of suitable healthcare services and facilities, or where local health authorities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel, to compensate for any lack of available services or facilities or lack of any local health authorities. The circumstances shall be investigated by Executing Agencies and their consultants during the design stage and full requirements shall be clearly described in the Bidding Documents. The Particular Safety Specification shall state whether the services and facilities specified are to be available during the normal working hours stated in the Contract or for any longer times. If any services and facilities under the Contract or additional services and facilities by JSSS are required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking-Over Certificate then this shall be clearly specified in the Particular Safety Specification. All such facilities shall be described and fully specified. If any facilities are to be handed to the Employer, any requirements for replacement, repair or renovation shall be described. The Particular Safety Specification shall also state whether the services and facilities at the Site shall also be made available and whether free of charge or not, to any accompanying family members of the Contractor's Personnel, or to the Employer's Personnel or to the family members of any other persons who are entitled to be on the Site.
JSSS 1.37 Design and Management of Temporary Works	As a standard requirement, the Particular Safety Specification shall require the Contractor to comply with BS5975 [Code of Practice for temporary works procedures and the permissible design of false work] (latest issue) or approved equivalent for the design and management of Temporary Works.

Reference	Requirements
	If the Contractor is NOT required to comply with BS5975, the Particular Safety Specification shall state this and also state that the Contractor is still required to comply in any event with the specified requirements of JSSS 1.37 [*Design and Management of Temporary Works*] and submit full details in the Safety Plan.
JSSS 1.38 Unexploded Ordnance (UXO)	If there is a known possibility that any UXO may exist at the Site, then this shall be surveyed and investigated by the Executing Agency before Bids are requested. The result of this investigation shall be clearly stated and full information including survey and investigation results shall be provided by the Executing Agency in the Particular Safety Specification. Clearance of UXO shall be undertaken by the Executing Agency as a condition precedent to commencement under GC 8.1 [*Commencement of Works*], by the agency's own arrangements and at their own cost. Clearance shall be carried out by specialist government organisations, forces or contractor(s) that are appropriately and specifically qualified, skilled and experienced in the safe and environmentally acceptable removal and disposal of UXO, engaged directly by the Executing Agency. Completion of clearance shall be evidenced through the issue by the Executing Agency's specialist remover of a certificate of UXO clearance from the Site area. A copy of this certificate shall be provided to the Engineer and the Contractor. No work shall commence in relevant areas of the Site until the receipt by the Engineer and Contractor of a copy of this certificate. Should the Contractor encounter any UXO, after a clearance certificate has been issued in accordance with the above, he shall immediately stop all affected work at Site, clear the affected area of all Contractor's Personnel, Employer's Personnel and all other persons and notify the Engineer and relevant authorities. Unless otherwise agreed with the Contractor, the Employer shall then make further arrangements for removal and disposal, then obtain and issue a further clearance certificate. Work shall resume in the affected areas after the Contractor has received a copy of the further clearance certificate together with any further instructions from the Engineer.
JSSS 2.1.1 Hazardous Substances	If there is a known possibility that any Hazardous Substances may exist at the Site this shall be stated and full details provided of all likely hazards in the Particular Safety Specification.
JSSS 2.1.2 (4) Asbestos	If there is a known possibility that asbestos in any of its various forms may exist at the Site (for example in existing buildings, structures or installations or which has been disposed of or buried at the Site) then this shall be surveyed and investigated by the Executing Agency using a specialist qualified consultant/contractor before Bids are requested. The result of this investigation shall be

Reference	Requirements
	clearly stated and full information including survey and investigation results shall be provided in the Particular Safety Specification. If possible, removal and disposal of this asbestos shall be undertaken by the Executing Agency before commencement of the Works by the Executing Agency's own arrangements and at their own cost. Removal and disposal shall be carried out by a specialist that is appropriately and specifically qualified, skilled and experienced in the safe and environmentally acceptable removal and disposal of asbestos, engaged directly by the Executing Agency. Completion of removal and disposal shall be evidenced through the issue by the specialist of a suitable certificate. A copy of this certificate shall be provided to the Engineer and the Contractor. No work shall commence at the Site until the receipt by the Engineer and Contractor of a copy of this certificate. Should the Contractor encounter any asbestos, after a clearance certificate has been issued in accordance with the above, he shall immediately stop all affected work at Site, clear the affected area of all Contractor's Personnel, Employer's Personnel and all other persons and notify the Engineer and relevant authorities. Unless otherwise agreed between the Employer and Contractor, the Engineer shall issue an appropriate Variation under GC 13 [*Variations and Adjustments*]. If removal is to be undertaken by the Contractor, this shall be stated in the Particular Safety Specification with full details and drawings provided, showing the extent and requirements for removal and disposal. Separate pay items shall be included in the Bill of Quantities to allow pricing of the removal and disposal with separate lump sum items given for mobilisation and removal of resources and approximate quantities given for the area of asbestos.
JSSS 2.1.7 (6) to (13) Monitoring and Records	The Contractor shall monitor any vibration, settlement and other adverse effects arising out of the execution of the Works to ascertain if these are causing any adverse effect to the Works or to Other Properties whilst ensuring that no damage or weakening is caused. If there is a risk that the execution of the Works may cause any damage to "Other Properties" and if the Executing Agency considers that particular requirements for monitoring equipment, locations and methods are necessary, then these shall be specified in the Particular Safety Specification. The methods may include for example the inclusion of monitoring criteria in the Particular Safety Specification to assist the Contractor in establishing his own procedures for monitoring, to avoid any damage to Other Properties.

Reference	Requirements
	If these particular requirements are included, it is important also to state in the relevant Clause of the Particular Safety Specification that the requirements are the minimum only and that compliance with such requirements shall not relieve the Contractor from any responsibility that he has under the Contract including responsibility to execute the Works without causing any damage to Other Properties.
JSSS 2.2.2 Working Area Perimeter	The Particular Safety Specification shall describe the required working area perimeter showing the extent, dimensions, constructional details and specification of any fencing or barriers, whether temporary or permanent. This is particularly required where any Dangerous Work is known to be required. Full information shall also be shown on the Drawings. Gates, barriers and other measures at Site entrances shall be described together with any arrangements for communications, lighting and power supply. Requirements for security at the Site entrance and also around the Site shall be described and whether these are to be provided by the Contractor or the Employer.
JSSS 2.2.6 Community Relations	The Particular Safety Specification shall require the Contractor to assist the Employer with creating and maintaining community relations, for example conducting traffic safety and awareness activities for the local community. Full details of requirements shall be specified.
JSSS 2.8 Fire Prevention	Although the Contract places obligations upon the Contractor for care of the Works, the Particular Safety Specification should include a listing and description of any particular fire-fighting and rescue services and facilities that the Contractor is required to provide at the Site. This is particularly relevant where the Site is situated some distance away from urban areas and/or where there is a lack of immediate availability of suitable fire-fighting and rescue services and facilities, or where such services and facilities do not exist or are lacking in capability or standard of care, or where so required by the nature of the Works, the Contractor shall be responsible for providing additional services and facilities at the Site as are necessary to fully protect all Contractor's Personnel, to compensate for any lack of available services or facilities or lack of any local health authorities. The circumstances shall be investigated by Executing Agencies during the design stage and full requirements shall be clearly specified in the Particular Safety Specification.

Reference	Requirements
	Such additional services and facilities at the Site could for example include: (1) An equipped fire engine based at the Site with qualified driver and crew selected from the workers at the Site. (2) Sufficient temporary water and power supply to maintain emergency use. (3) Additional PPE for the fire-fighting and rescue team. (4) Enhanced fire protection equipment and facilities around the Site. (5) Above services and facilities are available seven (7) days per week, twenty-four (24) hours per day or during the normal working hours stated in the Contract Data, etc. Where applicable, details shall be provided in the Particular Safety Specification for the selection, training and equipping of emergency fire-fighting teams selected from existing Contractor's Personnel at the Site, who in addition to their normal work, shall be called upon immediately in the event of any fire, to rescue any person(s) who may become trapped or injured or otherwise affected or incapacitated by fire and to provide suitable, specialist and appropriate first aid and medical treatment. Without limiting the Contractor's obligations, the Particular Safety Specification shall describe the particular scope of fire prevention services that are to be provided by the Contractor for the Works. If any services and facilities as required under the Contract or additional facilities as required by JSSS are required to continue during the Defects Notification Period or are to be handed to the Employer on issue of the Taking-Over Certificate then this shall be clearly specified in the Particular Safety Specification. All such services and facilities shall be described and fully specified. If any facilities are to be handed to the Employer, any requirements for replacement, repair or renovation shall be described.
JSSS 3 Existing Underground, Concealed and Overhead Services	The Particular Safety Specification shall describe the required extent of any work required in connection with any existing Underground, Concealed or Overhead Services. Details and specification shall also be shown on the Drawings. If any such services are the property of the Employer, this shall be stated clearly and the route, size, purpose of each shall be described and shown. If these services are to remain live and functional throughout the Time for Completion of the Works or if they are to be removed and if so by whom shall also be described. If any of these services are the property of a legally constituted public authority or a third party, this shall be stated clearly and the owner, route, size, purpose of each shall be described and shown.

Reference	Requirements
	A copy of the regulations of the legally constituted public authority or third party shall be provided in the Particular Safety Specification or made available with the Bidding documents. If services are to remain live and functional throughout the Time for Completion of the Works or if they are to be removed and if so by whom, (i.e. the authority or third party or the Contractor) shall also be described. The Particular Safety Specification shall also describe or include the procedures and requirements (including responsibility for insurance and safety procedures) of the authority or third party if the Contractor is to carry out the work.
JSSS 4.7 Temporary Fuelling Facilities	If fuel storage and dispensing arrangements are existing at the Site and are available for the Contractor's temporary use upon the Works then this shall be specified in the Particular Safety Specification and the requirements for use shall be described. When applicable, the Contractor shall design and construct temporary fuel storage and dispensing facilities at the Site for the use in Contractor's Equipment. If there are any restrictions upon the provision and use of such facilities, then these shall be described in the Particular Safety Specification.
JSSS 6.1.1 Design and Provision of Temporary Works Generally	In accordance with JSSS 1.37 [*Design and Management of Temporary Works*], the Contractor is generally required to comply with the requirements of Sections 1 and 2 of BS5975: Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework or an equivalent alternative standard. On exceptionally small projects or projects which do not demand the provision of complex temporary supporting or load bearing falsework and the like, the following alternative requirements may apply and if so, the following shall be included in the Particular Safety Specification: *The Contractor shall demonstrate by description in the Safety Plan that he has effective arrangements in place for controlling risks arising from the design, selection of materials, components and equipment, use, management, dismantling and removal of Temporary Works including for example, by ensuring the following:* *(1) Appointment of appropriately qualified and experienced staff.* *(2) Preparation of adequate Temporary Works designs.* *(3) Independent internal or external checking of the Temporary Works Design.* *(4) Preparation of a written record, listing all Temporary Works with supporting details and dates.* *(5) Pre-erection inspection of all Temporary Works, including materials, components and equipment.*

Reference	Requirements
	(6) Control and supervision of the Temporary Works erection, safe use, maintenance and dismantling of the Temporary Works, including procedures to: *(a) Check that the Temporary Works have been erected in accordance with the design and issue by the HSO of a suitable sign showing it as complete and safe to use; and* *(b) Confirm when the Permanent Works have attained adequate strength to allow dismantling of the Temporary Works and issue by the HSO of a suitable sign showing that it is ready for dismantling.* *In accordance with JSSS 1.18 [Proper Placement of Contractor's Personnel], the Contractor shall ensure that the design, erection, maintenance, dismantling and removal of Temporary Works, are all carried out by competent and experienced persons and in a controlled and closely supervised manner.*
JSSS 6.2 Earthwork Support	For monitoring requirements, refer to the above reference in this table to JSSS 2.1.7 [*Monitoring and Records*].
JSSS 6.3 Cofferdams	For monitoring requirements, refer to the above reference in this table to JSSS 2.1.7 [*Monitoring and Records*].
JSSS 7.1.2 Monitoring of Excavation Works and Surroundings	For monitoring requirements, refer to the above reference in this table to JSSS 2.1.7 [*Monitoring and Records*].
JSSS 7.2 Particular Safety Measures	In accordance with JSSS 7.2 [*Particular Safety Measures*], the Contractor shall be responsible for choosing manual or machine excavation, selecting types of Contractor's Equipment, types of Temporary Works, Earthwork Support, spoil removal, storage and handling, controlling ground and surface water, forming embankments and cuttings and the like. If there are any known and specific requirements or restrictions to be placed upon the Contractor for methods of excavation, types of equipment, Temporary Works Earthwork Support, spoil removal, storage and handling, controlling ground and surface water, forming embankments, cuttings and the like, then this shall be stated in the Particular Safety Specification and the requirements shall be specified.
JSSS 7.6.1 Scope	If the scope of the Works includes Blasting Works for tunnelling (which is presently not included in the scope of JSSS), full safety requirements shall be specified in the Particular Safety Specification.

Reference	Requirements
JSSS7.6.2 General Blasting Requirements	If Blasting Works are not allowable then this shall be stated in the Particular Safety Specification and any requirements and restrictions shall be specified.
JSSS 7.6.10 Monitoring Impact of Blasting Works on Other Properties	For monitoring requirements, refer to the above reference in this table to JSSS 2.1.7 [*Monitoring and Records*].
JSSS 8.2.8 Monitoring Impact of Foundation Piling Works on Other Properties	For monitoring requirements, refer to the above reference in this table to JSSS 2.1.7 [*Monitoring and Records*].
JSSS 10.6.1 Measures before Diving Operations	If there are any special requirements for communications with the Dive Team, these shall also be described.
JSSS 10. 7 Diving Accident Response Plan	If there is a decompression chamber or medical support services and facilities existing at or near to the diving site and is available for the use of the Contractor then this shall be stated and the type, specification and capacity shall be specified together with any requirements and restrictions for use.
GC 6.6 Facilities for Staff and Labour	The Particular Safety Specification shall describe any necessary accommodation and welfare facilities that the Contractor is to provide for the Contractor's Personnel and whether such facilities or further facilities are also to be provided for the Employer's Personnel and others. If any land area is available at the Site for such facilities this shall be stated and shown and any requirements and restrictions shall be described. The Particular Safety Specification shall describe the required scope, design, constructional details and specification, whether temporary or permanent and this shall also be shown on the Drawings. If such facilities are required, the Particular Safety Specification shall describe in detail: (1) Responsibility and scope of maintenance, repair and cleaning of such facilities as necessary to maintain them in a clean, habitable, hygienic and safe condition, including garbage removal and disposal, rodent and insect control and the like.

Reference	Requirements
	(2) Responsibility for and scope of potable water supply, water and power supply, waste water and sewage drainage and treatment. (3) Whether such facilities are required to be provided during the Defects Notification Period. (4) Whether such facilities are to be removed by the Contractor or are to be handed over to the Employer on issue of the Taking-Over Certificate and if so in what condition. The extent of provision by the Contractor shall take due account of the nature and location of the Site and the condition of access thereto, with a higher range and standard of facilities being provided in remote locations to promote good health, hygiene, comfort, welfare and safety of all users and occupants.

Section 3 BILL OF QUANTITIES

3.1. Incorporation of JSSS Requirements

(1) The Bills of Quantities to be prepared by the Executing Agency for the purposes of the Bidding Documents, Section IV. Bidding Forms shall include separate pay items to cover the main component parts of JSSS.

(2) The Executing Agency shall prepare a Bill of Quantities in accordance with the JICA Standard Bidding Document in order to:

(a) Provide the facility for the Contractor to include the cost of JSSS compliance in his Bid; and

(b) Provide a basis for the preparation of Statements as part of the Contractor's application for payment under GC 14 [*Contract Price and Payment*].

(3) Appropriate pay items shall be included in Bill No. 1 - General Items, to cover all principal components of the Safety Specification, such as:

(a) Assignment of HSO with supporting staff and provision of safety management activities (JSSS 1.13);

(b) Skill Training (JSSS 1.21);

(c) Accident Response Plan (JSSS 1.24);

(d) Emergency Response Plan (JSSS 1.26);

(e) Health Matters (JSSS 1.36);

(f) Design and Management of Temporary Works (JSSS 1.37); and

(g) Fire Prevention (JSSS 2.8).

The Pay items for the above shall be separated into lump sum and monthly payment items generally in accordance with the following Table 3.1 [*Sample Pay Items in the Bill of Quantities*].

Table 3.1: Sample Pay Items in the Bill of Quantities

Ref	Description	Establishment and Removal of Facilities (Lump Sum)	Provision of Services (Month)
(a)	Assignment of HSO with supporting staff and provision of safety management activities		✔
(b)	Skill Training		✔
(c)	Accident Response Plan	✔	✔
(d)	Emergency Response Plan	✔	✔
(e)	Health Matters	✔	✔
(f)	Design and Management of Temporary Works		✔

(g)	Fire Prevention	✔	✔

(4) As an example of the above for the Accident Response Plan:

(a) The Lump Sum shall cover the costs of provision and removal of facilities including:

(i) Sick bay;

(ii) Ambulance (if to be provided at the Site);

(iii) First aid appliances, aids, instruments and medicines;

(iv) Communication facilities;

(v) Any other temporary buildings required for response to accidents;

(vi) Temporary water and power supply to maintain use in accident response facilities during mains supply failure; and

(vii) Any additional facilities that may be specified in the Particular Safety Specification or otherwise required for compliance with the Contract.

(b) The monthly rate shall cover the regular costs of providing services including:

(i) Salaries, living costs and any other regular costs and expenses of medical staff, drivers and attendants;

(ii) Medical, first aid consumable and further supplies;

(iii) Supply and replacement of PPE for medical staff;

(iv) Costs of fuel, water, power and other consumables;

(v) Ongoing cleaning, maintenance and repair of facilities;

(vi) First aid training; and

(vii) Any additional services that may be specified in the Particular Safety Specification or otherwise required for compliance with the Contract.

(5) The quantity for the monthly item for provision of services shall be the required period for provision, which normally will not exceed the Time for Completion. Any services required during the Defects Notification Period to oversee completion of outstanding work and to remedy defects shall usually be at the Contractor's own cost.

(6) Appropriate pay items shall be included in other Bills of Quantities with relevant quantities, unit rates and sums for other parts of JSSS according to the particular scope of the Works for example removal of known hazardous substances, Blasting Work and Diving Works.

コメントの追加 [SS3]: 具体的な例示を Table の欄外に脚注の形で追記ください。
JICA requested to write concrete example below the Table as Note.

To MD, NK has tried to write the example as left, please add example for the executing agency.

コメントの追加 [MJD4R3]: I suggest that Accident Response is a better example, so I have drafted as opposite. Please refer also to GC 6.7