

SECTION 10700 WORKMANSHIP PLANT AND MATERIALS

10701 General

No Plant or material shall be used until and unless approved by the Engineer and Plant and materials not approved shall immediately be removed from the Works at the Contractor's expense.

No approval by the Engineer of any work method statements, Plant or material, drawings, samples or documents submitted by the Contractor, will relieve the Contractor of any of his responsibilities and/or liabilities under the Contract.

The Contractor shall remain entirely responsible for the proper execution, maintenance and completion of the Works and the remedying of defects therein, in accordance with the Contract.

All workmanship shall be performed to the highest international standard. All supervisors, foremen, artisans, craftsmen, technicians and the like shall be properly experienced and able in their respective skills. The Contractor may be called upon to demonstrate the experience and ability of any of his personnel. If such demonstration fails to satisfy the Engineer, the Contractor shall remove from the Site such person, or persons involved. The Contractor is to ensure that all Subcontractors observe and comply with these conditions.

All Plant and materials shall be of the highest international standard, new and the best of their respective kinds. All Plant and materials used in the Works shall be of the qualities and kinds specified herein and equal to approved samples where samples are required by the Contract or requested by the Engineer. Delivery shall be made sufficiently in advance to enable samples to be taken and tested if required.

The Contractor shall produce as and when requested by the Engineer, certificates of origin, names and addresses of suppliers and proof of purchase of Plant and materials intended for incorporation into the Works.

Plant and materials shall be transported, handled, stored and protected on the Site or elsewhere in such manner as to prevent damage, deterioration or contamination, all to the satisfaction of the Engineer. The Engineer reserves the right to inspect any Plant or materials to be used in the Works at any time and at any place of storage.

All Plant and materials which are required to conform to international standards shall bear the approved marks of the relevant standards or have certificates attached thereto, evidencing their compliance with the standards. Wherever Plant or materials are specified by proprietary name and the phrase "or at least equivalent" is not included, it is to be deemed included.

The dimensions in the Specification and Drawings conform to the metric system except where specifically indicated otherwise. If these dimensions fail to coincide with standard nominal sizes available, reasonable substitutions may exceptionally be authorized by the Engineer.

10702 Qualification of Manufacturers and Suppliers

Manufacturers and suppliers shall have regularly manufactured materials and Plant of the same or similar type to that specified for at least 10 years in advance of the Bid closing date.

The particular types of materials and Plant proposed for approval shall have been in commercial service for at least 2 years, with satisfactory performance evidenced if so

required by the Engineer.

Manufacturers of specialty Plant or systems, shall retain full responsibility for entire systems produced by them or for which their Plant constitutes the essential operating part.

**10703
Suitability**

The Contractor shall immediately refer to the Engineer any requirement shown or specified which he considers or believes:

- a) is not equal or equivalent to specified or normally accepted best industrial standards or does not achieve a good quality of installation as intended under the Contract; or
- b) is below standards for proper enforcement of warranties or guarantees required; or
- c) is at variance with governing laws, regulations, codes or standards.

**10704
Selection and
Design
Conditions**

All Plant and materials, which are specified by performance or similar requirements, including all equipment and systems shall comply with the requirements of Section 10400.

**10705
Availability of
Parts /
Components**

The Contractor shall select items of plant and materials for which replacement parts or components will continue to be manufactured and readily available for a period of at least fifteen (15) years after the date of their incorporation in the Works.

The Contractor shall provide a written guarantee in support of this at the same time of submission of the request for approval of the respective items of Plant or materials.

**10706
Alternatives**

Plant and materials shall meet the quality and performance standards established by these Specifications. If the Contractor find it necessary to deviate from requirements involving one piece of Plant, material, equipment or a subsystem, he shall describe the proposed deviation therefrom, state the reason and the improvement to be expected. Acceptance or rejection of deviations shall be made in writing by the Engineer. If certain characteristics of equipment, such as dimensions, power requirements and external connections, etc., depend on the manufacturer, any requirement of the Drawings and Specifications affected by such characteristics may be varied by the Contractor to suit the equipment proposed, but only subject to the prior approval by the Engineer.

Notwithstanding the fact that the Contractor may have submitted with the Bidding Documents, details of Plant and materials that are proposed in his Bid to be incorporated in the Works, the Engineer reserves the right at a later stage, to require the Contractor to replace at his own expense any item of Plant or materials that, upon subsequent examination, he considers as not fulfilling the requirements of the Contract.

As a general rule, the Contractor shall not change or substitute the Plant or materials that have been proposed in his Bid for incorporation in the Works

In exceptional circumstances, the Contractor may be given permission to use alternative materials or Plant if such materials or Plant are, in the opinion of the Engineer, equal or superior to those proposed or specified.

If the Contractor wishes to use alternative materials or Plant he shall submit his proposal to the Engineer with full documentary evidence that the alternative product is equivalent in respect of material, safety, reliability, function, compatibility with adjacent construction, availability of compatible accessories and, where relevant, appearance. This documentary evidence shall be provided with samples as required, in sufficient time for the Engineer to approve, or disapprove, the alternative materials or Plant, without causing delay to the Works

Any proposal for use of an alternative or deviation must also include proposals for substitution of compatible accessory products and variation of details as necessary, with evidence of equivalent durability, function and appearance of the construction as a whole. If such substitution is approved, and before ordering such materials or plant, the Contractor shall provide revised drawings, specifications and manufacturer's guarantees as required by the Engineer.

No approvals by the engineer for any alternative, replacement material, equipment, plant or any other modification will release the Contractor from his obligations, responsibilities or any liabilities under the Contract.

**10707
Supplier's and
Manufacturer's
Guarantees**

The Contractor shall obtain supplier's and manufacturer's warranties and/or guarantees for all items of plant, materials and installations wherever possible. The Contractor shall ensure that these are obtained in such a form that the benefits therein are passed to the Employer

Wherever possible, these manufacturer's and supplier's warranties and guarantees shall be obtained and submitted as part of the Contractor's initial request for approval of the respective Plant or materials.

The Contractor shall ensure that the warranty periods shall not commence until the date of Final Acceptance by the Engineer of the overall project.

**10708
Samples**

The Contractor shall submit samples, free of charge, for the items or components of the Plant and materials specified under the Contract or whenever requested by the Engineer. All components, Plant and materials subsequently delivered to the Site for use in the Works, shall be identical to the samples approved by the Engineer.

All samples shall be delivered together with the Contractor's Request for Approval (RFA) and submitted a minimum of 4 weeks in advance of commencement of work on the particular item, in order to give the Engineer sufficient time, to give approval/response.

The samples shall be provided with sufficient details for the Engineer to determine whether or not the sample(s) comply with the standard required.

Each sample shall be labelled indicating the generic name of the sample, the manufacturer's name and the model number, brand name and supplier's name, and any other relevant data.

The Contractor shall accompany each delivery of samples with a transmittal voucher, listing the sample data described above for each sample, cross-referenced to the appropriate drawings sheet and detail and to the respective item in the Specifications and the Bill of Quantities.

In addition to the foregoing requirements, the Contractor shall provide sample panels of various work items, well in advance of such item commencing on Site, all as

directed by and for the approval of the Engineer.

10709
Request for
Approval (RFA)

The Contractor shall make formal submissions for approval of materials, Plant manufacturers, suppliers etc., in compliance with the procedures of the Engineer, regarding format and numbering.

All RFA submitted by the Contractor, shall be clear and comprehensive to readily permit full and detailed review by the Engineer. The following submissions for the respective materials or Plant, shall therefore be made by the Contractor prior to manufacture and fabrication:

- a) Full documentary description with manufacturer's original brochures;
- b) Compliance listings showing in simple tabulated form a comparison between all pertinent items of the Specification and the actual items proposed, indicating "compliance";
- c) Results of testing to demonstrate compliance with requirements, standards or norms;
- d) Samples;
- e) Shop drawings;
- f) Manufacturers guarantees;
- g) Schedule and methodology for any further factory and Site testing that is proposed;
- h) List of proposed spare parts and tools and
- i) Details of companies in El Salvador who have the capability of providing maintenance, repairs and spare parts

The Contractor shall allow the Engineer at least 14 days for review and response to the RFA.

The Contractor will be responsible for the consequences of inadequate or late submissions.

10710
Delivery to Site

All materials and Plant, if manufactured or assembled off-Site must be properly and securely packed in order to prevent damage during transport to the Site.

The Contractor shall crate or box all consignments for ocean shipment in such a manner as to protect them from damage in transit, and shall be responsible for and rectify any and all damage due to improper packing prior to shipment. Crates shall have external markings identifying the origin, destination, contents and consignee.

All goods in shipment shall be insured with a reputable insurance company acceptable to the Employer. Such acceptance shall not free relieve the Contractor of his contractual obligation.

The Contractor may be required to furnish the Employer by airmail, with advance copies of shipping documents, Invoices and other pertinent papers on which shall be shown the date and origin of shipment, a description of the goods, the shipping

weight of each item, destination, and name of vessel.

Trans-shipment of Goods, until safely delivered at installation sites, shall be the responsibility of the Contractor.

The Contractor shall is to ensure that adequate storage on the Site is available, before the materials or Plant arrive, to properly store and protect the materials or Plant to prevent damage and/or deterioration. Air-conditioned or other controlled environment storage shall be required for some items of materials and Plant.

When materials or Plant arrive on the Site they shall be inspected by the Contractor in the presence of the Engineer, for damage and/or deterioration. If damage or deterioration has occurred, payment will not be made according to Clause 60 of the Conditions of Contract and the particular material or plant shall be removed from the Site and replaced or repaired according to the instructions of the Engineer. In some cases, the material or Plant may be packed in such a way that the opening of the packing for inspection could be harmful by allowing deterioration to commence or accelerate. Each case shall be treated on its merits.

Any action taken by the Engineer in inspection of such materials or Plant upon arrival, shall not relieve the Contractor of his responsibilities under the Contract

**10711
Supervision of
Installation of
Plant/Specialist
Equipment**

The Contractor shall employ upon the Site, supervisors who are specially trained and experienced in the assembly, installation, testing and commissioning of all items of Plant and specialist equipment.

These supervisors may be employees of the Contractor or of his Subcontractors, manufacturers, suppliers, etc. and they will remain at the Site for the full period of completion of the particular item of work.

The Contractor, when submitting his request for approval of the particular item of plant or equipment, shall include details of all such supervision he proposes to use for installation, testing and commissioning.

If such proposals are considered to be unsatisfactory by the Engineer, the Contractor shall arrange for other or additional supervision to be provided at no extra cost and without, in any way, reducing his responsibilities and obligations under this Contract.

**10712
Standards**

The general minimum applicable standard for the Works under the Contract shall be Japan Industrial Standard (JIS), or other internationally accepted standards, which ensure equal or higher quality to JIS.

Salvadorean standards may also be used subject to written approval the Engineer, if the same ensure equal or higher quality to JIS or where for reasons of compatibility with particular existing materials or Plant instructed or specified by the Engineer.

Examples of other internationally accepted standards are listed below. In any case where qualities of plant, materials or methods of sampling and testing are not stipulated in the Specification, the requirements of the following general standards shall apply.

AASHTO:	American Association of State Highway and Transportation Officials
ACI:	American Concrete Institute Standard
AMCA:	Air Moving and Conditioning Association

ARI:	Airconditioning and Refrigeration Institute, USA
ASHRAE :	American Society of Heating Refrigeration and Airconditioning Engineers
ASME:	American Society of Mechanical Engineers
ASTM:	American Society for Testing and Materials
AWWA:	American Water Works Associations
AWS:	American Welding Society
BS:	British Standard
HASS:	Heating, Air Conditioning and Sanitary Standards of Japan
IEC:	International Electrotechnical Commission Standard
ISO:	International Standards Organization
JASS:	Japan Architectural Standard Specification
JEM:	Japan Electrical Manufacturer's Standard
CSA	Canadian Standards Association
JFC:	Japanese Fire Code
JIS:	Japan Industrial Standard
JWWA:	Japan Water Works Association,
NFPA:	National Fire Protection Association, Codes and Standard, USA.

Whenever reference is made in the Contract to specific standards and codes, the provisions of the latest current edition or revision of the relevant standards and codes shall apply. Where such standards and codes are national, or relate to a particular country or region, other authoritative standards which ensure an equal or higher quality than the standards and codes specified will be accepted subject to the Engineer's prior review and written approval. Differences between the standards specified and the proposed alternative standards must be fully described in writing by the Contractor and submitted to the Engineer at least 28 days prior to the date when the Contractor desires the Engineer's approval. In the event the Engineer determines that such proposed differences do not ensure equal or higher quality, the Contractor shall comply with the standards specified in the Contract.

Within twenty eight (28) days from the Commencement Date, the Contractor shall obtain and keep available for inspection on the Site, one (1) copy of all codes and standards applicable to the Works. A further one (1) copy of all standards shall be submitted to the Engineer.

Should any copies of further standards be required by the Engineer, the Contractor shall obtain these and submit them to the Engineer, within twenty eight (28) days of being requested by the Engineer.

If further standards are required to support any submission of the Contractor, then copies of these shall be provided by the Contractor with his submission. Response to such submission may be deferred by the Engineer, at the risk and responsibility of the Contractor, unless and until copies of such further standards are received by the Engineer.

10713
Test and
Inspections

Tests shall be conducted as follows:

- a) When such tests are required under the Conditions of Contract or Specifications.
- b) When it is impossible to certify that the performance conforms with the requirements stipulated in the Conditions of Contract or Specifications.

Further testing and associated work shall be conducted as follows at the Contractor's

expense:

- a) Re-testing or additional testing or inspections made necessary by receipt of substandard test results, or other factors which indicate work to be below the standard of the Specification and where attributable to the Contractor;
- b) Repairs or replacements of work damaged by above specified re-testing or additional testing; and
- c) Repair or replacement of work which fails to comply with specified test or inspection requirements.

Unless otherwise specified in the Conditions of Contract or Specifications, the test specimens shall be submitted by the Contractor with the request for approval of the item concerned.

Testing will be carried out as work progresses. Testing and inspections will be attended and witnessed by the Engineer. At least 7 days advance formal notice shall be given by the Contractor to the Engineer.

Tests may be carried out by the Engineer, at his discretion.

In advance of completion of the laboratory, or lack of facility therein, or at the discretion of the Engineer, tests will be performed by one or more independent testing agencies as directed by the Engineer at the Contractor's cost

The Contractor shall furnish all materials and samples for all required tests, supplied to the place, in quantities and at the appropriate time and with all necessary cutting, machining, labelling and other preparation and transportation.

The Contractor shall provide sufficiently qualified personnel, materials, equipment and consumables for testing.

The Contractor shall supply to the Engineer, any requested certificates of compliance with the Standards. Tests shall also be carried out as and when instructed by the Engineer in accordance with the Specification or the relevant standards. Plant or materials for testing shall be provided and delivered by the Contractor at his own cost. All reasonable expenses of the Engineer and the Employer, including attending for off-site or factory tests and all costs of testing fees shall be borne by the Contractor.

Records of all tests shall be submitted promptly and in an approved format to the Engineer.

As a general rule, the Contractor shall where practicable conduct pre-completion inspections, testing and commissioning for himself of all Plant, areas and items to ascertain for himself that the Works conform to the requirements of the Contract. After satisfying himself that they do comply, the Contractor shall then apply to the Engineer in writing for the tests to be made, in the presence of the Engineer.

Tests shall be carried out according to a testing program which has been approved by the Engineer. Particular testing will be carried out according to the requirements of the Specifications.

10714
Tests on
Completion

Prior to substantial completion and taking over of the Works, the Contractor shall conduct completion inspections, testing and commissioning of all areas and items to ascertain for himself that the completed Works conform to the requirements of the Contract.

After satisfying himself that they do comply, the Contractor shall then apply to the Engineer in writing for the Tests on Completion to be made, in the presence of the Engineer.

Tests shall be carried out according to the testing program which has been approved by the Engineer.

SECTION 10800 CONTRACTOR'S DRAWINGS

10801 General

No approval by the Engineer of any drawings, submitted by the Contractor, will relieve the Contractor of any of his responsibilities and/or liabilities under the Contract.

The Contractor will remain entirely responsible for the proper execution, maintenance and completion of the Works and the remedying of defects therein, in accordance with the Contract.

The Mechanical, Electrical, Equipment and other specialist Systems shown on the Drawings are schematic only and indicate the minimum requirements for achieving the desired performances as stated in the Specifications and shown on the Drawings.

In order to develop these requirements into comprehensive systems the Contractor shall:

- a) develop the design and submit fully detailed shop drawings of all aspects of the systems, in accordance with the requirements of Section 10500;
- b) submit full details of all materials and equipment to be used; and
- c) provide all other necessary information.

The submissions shall supplement the information contained in the Drawings and Specifications and subject to the Engineer's approval to ensure that the overall design criteria, intent and cost parameters are being adhered to.

In all aspects of this work the responsibility will rest with the Contractor whether or not the details are provided by his subcontractor.

In addition, the Contractor in the execution of the Works, shall supply and install all auxiliary materials and equipment incidental to the work to ensure that complete, functioning installations and systems meet the intended purpose.

The cost for preparing Shop Drawings, Coordination Drawings and As-Built Drawings are deemed to include in the rates of respective pay item of BOQ.

10802 Schedule of Shop Drawings

The Contractor shall submit to the Engineer, within 28 days after commencement of the Works, two (2) copies of a schedule of future shop drawings for the Works showing the following:

- a) Drawing numbering system;
- b) Section titles;
- c) Drawing titles and numbers (preliminary);
- d) Planned date of submission; and
- e) Planned date of completion of the Engineer's review.

In preparing the above, the Contractor shall ensure that a minimum of 28 days for each submission is allowed for the Engineer's review, comment or approval. The Contractor shall also allow sufficient time for modification, correction and

resubmission where so required by the Engineer.

This schedule shall be regularly updated on a monthly basis and submitted to the Engineer for his review and comment.

The regular monthly submissions shall indicate:

- a) The actual title, numbering and revision of shop drawings as and when they are known;
- b) Status of preparation by Contractor;
- c) Revised dates of submission and reasons; and
- d) Status of submission

Failure of the Contractor to include any shop drawings on the Schedule, shall not relieve him of his responsibility to submit all required shop drawings, and in a timely manner to permit correct processing by the Engineer.

**10803
Provision of
Shop Drawings**

The term "shop drawing" shall be understood to include "shop drawings, working drawings, design drawings, design development drawings" and the like.

The Contractor shall submit shop drawings where so required by the Contract or as requested by the Engineer. Shop drawings shall be based on the Drawings and Specification requirements, prepare to a suitable approved scale and shall clearly show all working details for manufacture, fabrication, assembly and erection or installation for all Plant and systems.

The shop drawings shall include:

- a) Plans, sections, details and elevations.
- b) Flow charts, wiring diagrams and system diagrams.
- c) Anchorages, fixings and supports.
- d) Waterproofing details and penetrations of all walls, floors, structures.
- e) Further design details.

The shop drawings shall be provided in one (1) original and four (4) copies.

Shop drawings shall be submitted as soon as possible to the Engineer for review, comment and/or approval but in any event not later than the "Planned Date for Submission", indicated in the Schedule of Shop Drawings.

For each submission of shop drawings a minimum time of 28 days shall be allowed for review by the Engineer.

The Engineer's review, comment and/or approval of shop drawings shall not relieve the Contractor of any responsibility under the Contract, or of the necessity of furnishing material or performing work required by the Drawings and Specifications which shall, in the event of any dispute, take precedence over shop drawings.

Shop drawings from subcontractors, manufacturers, suppliers or the like, shall be

thoroughly reviewed by the Contractor before submission to the Engineer. Such review by the Contractor shall include a study of all technical and dimensional aspects together with a review for coordination purposes to ensure that the work indicated on the shop drawings, is correctly coordinated according to the constraints of all other related works. The Contractor's requirements, comments or corrections, deriving from his review, shall be incorporated by the subcontractor, manufacturer or supplier, prior to submission by the Contractor to the Engineer. Any shop drawing which has not been reviewed by the Contractor, or corrected as aforesaid, may be returned to the Contractor by the Engineer, without review.

Shop drawings shall be reviewed and commented upon by the Engineer and will be returned to the Contractor indicating whether they are:

- a) Rejected;
Shop drawings which are rejected, shall be corrected by the Contractor and resubmitted to the Engineer for approval; relevant works should not proceed at this stage.
- b) Approved with comments;
Shop drawings which are "approved with comments" shall be corrected and immediately resubmitted for final approval; relevant works may proceed on the understanding that the Engineer's comments are incorporated.
- c) Approved

Any comment or approval given by the Engineer on shop drawings for work, for which the Contractor is responsible for the design, shall not in any way limit the Contractor's obligations for the design, nor transfer this responsibility to the Engineer.

The submission of shop drawings (either original submission or re-submission with corrections) constitutes evidence that the Contractor has checked all information thereon and that he accepts all responsibility therefor.

No claims for extra payment shall be based on delay in the completion of review of shop drawings should such evidently result from the Contractor's failure to comply with the above procedures and the Conditions of Contract. In this regard, Conditions of Contract Clause 6.3 shall be construed as including "approval of the Engineer" within the phrase "any further drawing or instruction", in relation to shop drawings and, like submissions and any notice given under this clause, shall specifically refer to the particular approval(s) required.

All drawings submitted, including those by of subcontractors, manufacturers or suppliers, shall be signed by the Contractor's Representative.

All shop drawings shall be provided in an approved Auto CAD 2000.

**10804
Coordination
Drawings**

Before respective works are implemented on Site, the Contractor shall coordinate all elements of the Works and prepare and submit to the Engineer for his approval, Coordination Drawings for all required areas.

This coordination (the results of which shall be reflected on the Coordination Drawings and work plan), shall include a study of all Plant terminal equipment, mechanical, electrical, building and structural elements, to ensure that:

- a) Routings of pipes, ducts, cables and the like are systematic and as direct as possible, without excessive deviation;
- b) Obstructions are anticipated and avoided;
- c) Architectural elements (e.g. tiling) are correctly installed to suit their modular sizes, without excessive or uneven cutting;
- d) Penetrations through tiling or other modular elements, are properly located (generally central);
- e) Light fittings, sprinklers, detectors and the like, are efficiently located, without conflict and are properly located in tiles or modules;
- f) Electrical switches, outlets and the like are accessible,
- g) Mechanical and electrical Plant and equipment are properly positioned in control rooms, operation rooms and equipment/plant rooms, that provide free unobstructed access for easy maintenance, repair or replacement.

The coordination drawings shall include plans and sectional details and shall be to scales, all to be approved by the Engineer.

The coordination drawings shall be provided in one (1) original and four (4) copies.

The coordination drawings shall be submitted as soon as possible in order that any required modifications can be made, without delaying the progress of the Works. For each submission of coordination drawings a minimum time of 28 days shall be allowed for review, comment and/or approval by the Engineer.

The Engineer's review of coordination drawings does not relieve the Contractor of any responsibility under the Contract.

**10805
As-built
Drawings**

The Contractor shall prepare throughout the progress of the Works and keep up-to-date "as-built" drawings of the Works as constructed. These drawings shall show all changes or revisions from the original Drawings, and show the exact "as-built" locations, sizes and further details of the Works.

The master copy of these drawings shall be kept by the Contractor on Site for the inspection of the Engineer and shall be used as a record set.

At the end of every month, or such other period as the Engineer may instruct, all entries, changes or revisions made to the Drawings by the Contractor shall be submitted for checking and approval by the Engineer.

Prior to substantial completion and taking over of the Works or any part thereof, the Contractor shall submit to the Engineer final as-built drawings for approval by the Engineer. These drawings shall have been fully checked by the Contractor.

The final as-built drawings will accurately represent the Works as constructed incorporating the effect of all Site changes, variations and instructions and will particularly highlight and detail the size, reference, layout and routing of all pipes, ducts, cables, wires and the like and the location of all Plant and equipment

The following copies of the final as-built drawings shall be provided.

Full size (A-1) copy:	3 sets
Reduced size (A-3) copy:	5 sets
Reproducible copies A-1 and A-3 sizes:	1 set each
Floppy or compact disk:	1 set

After approval, and as directed by the Engineer, these drawings shall be securely bound by the Contractor into separate volumes, with covers and contents pages added. Final submission shall be made to the Engineer for transmission to the Employer.

An approved type of fireproof steel drawing cabinet (drawer type), shall also be provided by the Contractor to the Employer, for secure storage of these drawings.

SECTION 10900 CONTRACTOR'S FURTHER SUBMISSIONS

10901 General

No approval by the Engineer of any work method statements, drawings, samples or documents submitted by the Contractor, will relieve the Contractor of any of his responsibilities and/or liabilities under the Contract.

The Contractor will remain entirely responsible for the proper execution, maintenance and completion of the Works and the remedying of defects therein, in accordance with the Contract.

10902 Work Method Statements

The Contractor shall update the outline construction plan and proposed layout plan for Temporary Works submitted with the Bid.

The Construction Plan shall detail the proposed methods, procedures, sequences, to be adopted for all of the Permanent and Temporary Works.

Particular attention shall be paid to describing the quality and safety control procedures and adequate provision shall be made for inspections, approvals, factory and Site tests.

The Contractor shall be called upon to update and revise such plans and method statements all to the approval by the Engineer at regular intervals throughout the duration of the Works.

10903 Records

The Contractor shall prepare records of work progress, number and types of Contractor's Equipment and labour, delivery dates of Plant and materials, weather conditions, tests and inspections, etc. and submit these records to the Engineer according to the provisions of the Contract.

10904 Photographs

The Contractor shall prepare both digital and 35 mm photographs showing the monthly progress of the Works and submit them to the Engineer as part of the Contractor's monthly report pursuant to Clause (91) of the Conditions of Contract.

Before substantial completion and taking over of the Works the Contractor shall have photographs taken by a recognized professional photographer of the interior and exterior of all sections of the Works upon consultation with the Engineer. Two (2) sets of negatives, four (4) sets of prints and two (2) sets of 35mm colour slides shall be provided in albums and submitted to the Engineer. The album shall be of A3 or A4 in size and shall have the date, names of the Works, Consultant and Contractor and other particulars as directed by the Engineer. A similar copy in digital format in the latest edition of Microsoft Power Point shall also be prepared and submitted to the Engineer at the same time as the paper copy.

All photographs and files shall become the property and copyright of the Employer.

10905 Video Films

On a monthly basis or as alternately required by the Engineer, the Contractor shall prepare digital video films to indicate progress of all areas of the Works as directed by the Engineer, and submit these as a part of the progress record of the Works.

Before substantial completion and taking over of the Works, the Contractor shall compile these video films and produce a 60-minute digital video presentation entitled "Record of Construction Works of the Package A Civil and Building Works at La Unión Port". Each section of the film shall indicate the date upon which it was taken.

**10906
Miscellaneous**

Manufacturer's catalogues, manufacturer's specifications of Plant and materials, details of testing and commissioning procedures, manufacturer's recommended spare parts lists, and other technical data shall be submitted timely, for review, comment and/or approval of the Engineer where so required by particular Sections of the Contract or as requested by the Engineer.

**10907
Operating and
Maintenance
Manuals**

Before substantial completion and taking over of the Works, the Contractor shall prepare detailed operating and maintenance manuals for systems and plant and submit these to the Engineer for his review and consent.

The manuals shall be provided for all sections of the Works as required by the Specifications or as directed by the Engineer and shall be sufficient in detail such as the enable the Employer to operate and systematically maintain and repair the Works after completion.

The manuals shall be securely and properly bound by the Contractor into a book form in separate volumes, with covers, index and contents pages and page numbers. All shall be in the English and Spanish language and relevant items or particular components within the text shall be clearly highlighted.

Drawings and diagrams shall be reduced to a convenient size and bound into the volume.

The name of the Employer, Engineer and Contractor shall be inscribed upon the cover together with the title of the Works and contents.

The manuals shall be divided into sections such that information can be easily accessed.

Separate manuals shall be required for each complete system and for all hardware and software components thereof.

Where one section of the Works comprises a number of separate items of plant or equipment, the Contractor shall compile all information into one or more complete volumes, which cover the entire section.

The manuals shall contain, but shall not be limited to, the following:

- a) The purpose of the manuals and their composition;
- b) Complete and accurate technical description of the system and all plant contained in the system describing the technical characteristics, operating conditions and performance, using by both text and either drawings or text or both. Manufacturer's technical literature may be included in the respective sections;
- c) The theory and function of each part of the system or plant within that system;
- d) Installation and adjustment procedures describing unpacking, mounting, wiring and method of adjustment of each component;
- e) Operating procedures from start-up to close-down with all intermediate stages;

- f) A numerical identification system for components, valves, control points and units;
- g) A description of normal valve settings, flow diversions, and operational requirements;
- h) A complete list of all modules, components and parts of all plant within the system giving the original manufacturers' name, address and part number and type. Names and addresses of local firm(s) able to provide these parts shall also be given;
- i) A complete list of all consumables, and suitable alternatives, with the name and address of the original supplier and the name(s) and addresses of the local firm(s) able to provide these materials or alternatives;
- j) Maintenance instructions describing, in detail, the procedures and test equipment and tools required to properly maintain the performance of the equipment, repair and operate the Plant and equipment installed at the Site, including preventive maintenance schedule and check sheet samples;
- k) Trouble-shooting symptoms list with chart and description of symptoms; aside from the above list and chart, provide diagnostic procedures for trouble-shooting for each unit;
- l) Safety measures to prevent accidents to persons or plant;

Manuals must refer to the exact model, style and type of plant provided. Manuals referring to similar but different models will not be accepted.

Two advance copies of the final draft manuals shall be provided to the Engineer for his review and consent, not later than 3 months before the scheduled date for commissioning of the relevant Plant or system.

After review and consent of the Engineer, the Contractor shall provide 6 copies of the final version incorporating all amendments and corrections, by no later than 1 month before the actual date for commissioning.

Copies of the final versions of the manuals shall be available by the commencement of the Employer's personnel training and 1 or 2 copies thereof shall be used as reference material at such training.

SECTION 11000 TOOLS AND SPARE PARTS

11001 Maintenance Tools

Any tools, (including equipment servicing or repair) which are required for the operation and maintenance of any system or any item of the Plant supplied, shall be provided by the Contractor at his own expense to the Employer.

Two complete sets of such tools, in suitable storage container adequate for the purpose, for each type of system or plant shall be supplied.

Unless separate pay items are included, the cost of tools and containers shall be deemed to be included in the rates and prices for the Plant.

Lists of maintenance tools, servicing and repair equipment shall be submitted to the Engineer for review and approval, if possible at the same time as the approval application for the equipment itself.

The tool types and quantities so approved shall be handed over to the Employer, prior to substantial completion of the Works.

11002 Spare Parts

The term "spare parts" shall be understood also to include "spare materials".

The Contractor shall at his own expense, supply spare parts to assure efficient and continuous operation of the Plant and for repair of damage to or replacement of the same.

The particular types and quantities of spare parts shall be as required by the Specifications. Spare parts shall be provided for all plant and systems.

Where particular requirements or quantities for spare parts for plant and systems are not stated in the Specifications, spare parts shall still be provided and the quantity shall be computed on the general criteria of the quantity required for (two) five years operation of the Works, as recommended by the manufacturer and as reviewed and approved by the Engineer.

In addition to the quantity computed from the above criteria, the following minimum shall be provided for mechanical and electrical Works.

- a) Electrical Works in Part IV Specifications for Utility Works – provide spare electrical switchgear and control gear components, luminaries, and lamps, equivalent in minimum to 5% of the BOQ final item quantity for each type and rating, minimum quantity: 5 each.
- b) Mechanical Works – provide spare sanitary fittings of each type and colour (required quantity: 5 nos. of each type)

In addition to the above mentioned spare parts, the Contractor shall provide:

- i) At least two complete sets of fuses for each electrical system of all types, kinds and sizes used.
- ii) Lubricants for all plant and systems as recommended by the manufacturer, sufficient for (two) five years operation as recommended by manufacturer and as approved by the Engineer.

Provision of spare parts for Building Works shall be equivalent to 5% of the Bill of Quantities final item quantity for each type, size and colour of the following:

- i) Components of door and window fittings and ironmongery such as hinges, handles, door closers and locks, minimum 5 nos. each.

- ii) Glazing materials, minimum 5 square meters each.
- iii) Finishing materials such as floor, wall and ceiling finishes, paints and wall coverings, minimum 5 square meters each.

A detailed list of the spare parts proposed shall be submitted to the Engineer, for approval. The Engineer reserves the right to modify the list proposed at the expense of the Contractor to meet the above criteria.

Spare parts shall be handed over to the Employer before substantial completion and taking over of the Works.

Spare parts shall be delivered and unloaded in the place designated by the Engineer. All spare parts shall be packed for long storage under the climatic conditions prevailing at the Site. Each package shall be clearly and indelibly labeled with a description of the contents and quantity.

The Engineer may require the Contractor open packages for inspection. All such opening and resealing shall be at the expense of the Contractor.

The spare parts which have been handed over to the Employer, shall not be used by the Contractor for the maintenance and repair services or for the remedying of any defects during the Defects Liability Period.

In exceptional cases the Employer may permit such usage but the Contractor shall immediately replenish any stocks used.

SECTION 11100 EMPLOYER'S AND ENGINEER'S FACILITIES

11101 Provision of Laboratory

11101.1 Construction of Permanent Laboratory

The Contractor shall construct a laboratory with fully furnished and full testing facilities for the exclusive use of the Employer and Engineer in a part of the Employer's/Engineer's office as soon as possible but in any event not later than twelve (12) months after the Commencement Date.

The laboratory shall be constructed, fully furnished, fully equipped, cleaned, and maintained throughout the duration of the Works to the satisfaction of the Engineer. The Contractor shall provide electrical supply, one (1) telephone line with three extension lines, piped water supply, waste and sewer drainage systems for laboratory.

The Contractor shall be responsible for preparing the detailed design and shop drawings of the laboratory with a building for the Employer's/Engineer's office. The required floor arrangement of the permanent laboratory building is as illustrated in Appendix 102 together with the Employer's/Engineer's office.

The laboratory with furniture shall become the property of and shall be handed over to the Employer upon substantial completion and taking over of the whole of Works. Before this date, the Contractor shall refurbish, repair and redecorate the building.

All laboratory equipment shall become the property of the Contractor.

11101.2 Renovation of Temporary Laboratory

The Contractor shall renovate an existing building indicated in the Drawing not later than one (1) month from the Commencement Date.

All ceilings, wall, windows, doors and floor shall be renovated to the satisfaction of the Engineer. Utility facilities such as electricity, water supply, sanitary, etc. shall be re-installed and ceiling, doors and wall shall be painted.

Three (3) units of split type air-conditioner having capacity of 30,000BTU shall be installed at the location instructed by the Engineer.

Before issuing the completion certificate for the permanent laboratory and transfer all furniture and equipment, the Contractor shall not demolish this temporary laboratory.

11102 Requirements for Laboratory

11102.1 Utility Services and Maintenance of Laboratory

All utility and maintenance services shall be provided and all expense for such services for the temporary and permanent laboratory shall be born by the Contractor.

Utility services shall include water and electricity supply and telephone line. A bottle water dispenser shall be provided and bottled water shall be supplied on a regular basis for consumption of the Employer's and Engineer's staff.

The Contractor shall provide three (3) qualified full time technicians to work in the Engineer's laboratory throughout the period of Contract.

Janitorial and waste removal services shall be provided with cleaning undertaken and waste removed on a daily basis.

Dedicated security services shall be provided on a 24 hour basis.

11102.2 Laboratory Testing Equipment and Consumables

Laboratory testing equipment and consumables as indicated in Attachment A shall be new and be provided by the Contractor. Laboratory equipment which is a value of more than US\$ 1,000 per unit shall be insured by the Contractor against damage

of any cause and all equipment and consumables shall be maintained by the Contractor at the Contractor's expense. All equipment shall be regularly checked, re-calibrated and re-certified.

11102.3 Furniture and Utensils for Laboratory

The Contractor shall provide a set of new furniture and utensils as indicated in Appendix 101.

11103 Completion Requirements for Laboratory

11103.1 Completion Certificate

A certificate shall be issued by the Engineer upon completion of renovation and construction of laboratory when all finishing, furniture, utilities and equipment are provided and the laboratory is ready for occupation.

11103.2 Calibration Tests

Before completion and use of the laboratory, the Contractor shall make calibration of testing equipment. It may include to use the Contractor's own equipment or testing by an independent authorized testing agency at the discretion of the Engineer.

11104 Provision of Employer's/ Engineer's Office

11104.1 Construction of Permanent Office

The Contractor shall provide an office with full facilities for the use of the Employer's and the Engineer's staff at the location indicated in the drawing MS-00-003 as soon as possible but in any event not later than twelve (12) months after the Commencement Date.

The office building shall be of two (2) stories structure as indicated in Appendix B and it shall be permanent substantial construction with reinforced concrete slab and frame, plastered masonry walls and pitched, clay tile roof and drop ceiling. All area shall be air-conditioned with eight (8) units of split type air-condition each has a capacity of 30,000 BTU.

The shall have following supporting facilities:

- a) Standby generator 100 KVA capacity, with 600 liter fuel oil tank and electrical equipment for auto-switching and connections to existing office and new laboratory
- b) Concrete or asphalt paved areas to front and side of the Engineer's office and the laboratory, overall area approximately 600 m².
- c) Car parking roof shade with galvanized corrugated iron on steel frame for 15 cars.

The Contractor shall be responsible for preparing the detailed design of the office.

The office shall be constructed with fully furnished and fully equipped as listed in Appendix 102.

The office building with furniture and utensils shall become the property of and shall be handed over to the Employer upon substantial completion and taking over of the whole of Works. Before this date, the Contractor shall refurbish, repair and redecorate the building.

11104.2 Renovation of Temporary Office

The Contractor shall renovate an existing building indicated in the Drawing not later than one (1) month from the Commencement Date.

All ceilings, wall, windows, doors and floor shall be renovated to the satisfaction of the Engineer. Utility facilities such as electricity, water supply, sanitary, etc. shall be re-installed and ceiling, doors and wall shall be painted.

Four (4) units of split type air-conditioner having capacity of 30,000BTU shall be installed at the location instructed by the Engineer.

Before issuing the completion certificate for the permanent office and transfer all furniture and equipment, the Contractor shall not demolish this temporary office.

**11105
Requirements
for Employer's
/Engineer's
Office**

11105.1 Utility Services and Maintenance of Office

All utility and maintenance services shall be provided and all expense for such services for the temporary and permanent office shall be born by the Contractor.

Utility services shall include water and electricity supply and telephone line. A bottle water dispenser shall be provided and bottled water shall be supplied on a regular basis for consumption of the Employer's and Engineer's staff.

Janitorial and waste removal services shall be provided with cleaning undertaken and waste removed on a daily basis.

Dedicated security services shall be provided on a 24hour basis.

11105.2 Furniture and Equipment for the Engineer

The Contractor shall provide a set of new furniture, utensils and equipment as indicated in Appendix 102.

**11106
Completion
Requirements
for Employer's
/Engineer's
Office**

11106.1 Completion Certificate

A certificate shall be issued by the Engineer upon completion of renovation and construction of laboratory when all finishing, furniture, utilities and equipment are provided and the laboratory is ready for occupation.

11106.2 Calibration Tests

Before handing-over the equipment to be provided, the Contractor shall make calibration of equipment utilizing calibration certificates issued by the manufacturers. Such calibration results, manufacturers' certificates and operation manual shall be submitted together with equipment.

**11107
Boats for the
Engineer**

The Contractor shall provide the Engineer a launch and a boat not later than 28 days after the Commencement Date for his sole exclusive use.

The launch shall be at least 14 meters long with a sheltered area with standing headroom and equipped with an inboard diesel engine of sufficient capacity to safely reach a speed of approximately 9 knots at full load during a slack tide. The boat shall be approximately 10 meters in length and fitted with a 125 HP outboard engine. Each vessel shall be a age of less than 7 years and equipped with sufficient numbers of approved life jackets for the complete complement of crew and passengers.

The Contractor shall provide competent qualified four (4) boatmen for the launch and two (2) for the boat, and shall be responsible for operation and maintaining the craft. The launch and the boat shall be to the approval of the Engineer and shall be of construction in timber or fiberglass.

On completion of the Contract the launch and the boat and all associated equipment shall become the property of the Contractor.

**11108
Vehicles for the
Engineer and
Employer**

11108.1 Provision of Vehicles

At the Commencement Date of the Contract, the Contractor shall provide the following new vehicles not later than fifteen (15) days after the Commencement Date:

Vehicle Type A

Sedan motorcar of nominal capacity, 5 seats, 2.4 liters gasoline, mechanical transmission type (Toyota Camry GL with Model NO. ACV30L-AEMNKW or equivalent approved by the Engineer).

(For Employer)

One (1) Sedan motorcar

Type B (For Engineer)

Two (2) unit of passenger transport microbus with 15 sets, 3.0 liters diesel engine, mechanical transmission type (Toyota Hi-Ace with Model No. LH174L-BRMRS or equivalent approved by the Engineer).

Type C (For Engineer)

Six (6) units of 4-wheel drive utility vehicle, 7 seats, 3.0 liters turbo diesel engine, mechanical transmission type (Toyota 4-Runner with Model No. KZN185L-GKMST or equivalent approved by the Engineer).

Type D (For Engineer)

Four (4) units of rough terrain 4-wheel drive pick-up, 5 seats, double cabin, 2.8 liters diesel engine, mechanical transmission type (Toyota Hi-Lux with Model No. LN166L-PRMSS or equivalent approved by the Engineer).

The vehicles shall be for the use of the Employer and the Engineer and their staff. The Employer and the Engineer have the right to use the vehicles not only officially but also for other purposes.

The contractor shall also provide and paid for a full time driver for each vehicle with the allowance of 400 hours of work per driver per month including overtime for the exclusive use of the Employer and the Engineer. The Employer and the Engineer reserve the right to drive the vehicle themselves in some circumstances.

The tools and optional facility to be provided shall be of "Full Extras" defined by the dealer of similar setup by other manufacture. Vehicles shall be equipped with a fire extinguisher, seat belts for all seats, two sets of upholstery and first aid kits.

The Contractor shall make necessary arrangement of car registration under his name for car plate license and Registration (Tarjeta de Circulacion).

The Contractor shall insure each vehicle above with All Risk Car Insurance with a package named "Full Cover" of SISA Insurance Company covering theft of car or equivalent approved by the Engineer.

On completion of the Contract, or as directed by the Engineer, all vehicles shall be overhauled, fully serviced and any body and upholstery damage repaired and the vehicles shall be handed over to the Employer.

11108.2 Maintenance of Vehicles

The Contractor shall pay for a package maintenance plan (Plan de Contrato de Mantenimiento Preventivo Cero specified by the vehicle dealer in the dealer shop or a dealer approved shop) covering 3 years when the vehicle are purchased. The Contractor shall pay for extra cost of accident not covered by the insurance, costs of parts required for repair and maintenance until the total running distance reached to 200,000 km, costs for replacement of tires, and renewal costs of registration of car plate license and Matricula (Tarjeta de Circulacion).

The contractor shall pay for all the gasoline, lubricants and any other consumables required for the safe operation of the vehicles during the length of the project.

11109

**Engineers
housing
quarters**

The contractor will provide the housing quarters for the engineer for the length of the engineers assignment and pay for all basic utility services including bottled water during the same period except consumption telephone bill.

The contractor will provide the houses as specified in Appendix 103. The location of all units shall be preliminary approved by the engineer.

SECTION 11200 DEMOLITION AND SITE CLEARANCE

- 11201**
General
- The work includes demolition, salvage of items and materials, and removal of resulting rubbish and debris. Rubbish and debris shall be removed from Government property daily, unless otherwise directed, to avoid accumulations at the demolition site. Materials that cannot be removed daily shall be stored in areas specified by the Engineer. In the interest of conservation, salvage shall be pursued to the maximum extent possible; salvaged items and materials stockpiled on base as directed by the Engineer. At least one week before commencement of demolition and site clearance works, the Contractor shall submit his proposals for carrying out the work to the Engineer for approval. The proposals which may be staged shall include details of timing and extent of the Work.
- 11202**
Site Clearance
- 11202.1**
Prior to the commencement of any dredging, reclamation or construction works, the Contractor shall clear, demolish, break up and remove all buildings, structures and superficial obstructions on the Site in the way of, or otherwise affected by, the Work. He shall clear each part of the Site at times and to the extent required or approved by the Engineer.
- 11202.2**
The Site shall be cleared of all trees, stumps, bushes, existing structures, fences, debris and other rubbish, except for such trees, or other vegetation directed by the Engineer, for preservation. Trees or shrubs to be left in place shall be protected against injury during construction operations and no storage will be permitted within the area of root run of such designated trees and shrubs.
- 11202.3**
In all cleared areas all stumps and roots shall be completely removed and all structures, walls, or other objectionable matter other than soil shall be removed for a depth of at least 60 cm below formation level. Any parts of structures below these levels shall be cleared out, walls and floors punctured in order to prevent retention of water and the whole filled solidly with approved material and compacted to the satisfaction of the Engineer. All stump and root holes shall be backfilled with approved material and compacted to the same density as the surrounding material.
- 11203**
Demolition
- 11203.1**
A Demolition Work Plan shall be submitted for approval. The procedures proposed for the accomplishment of the work. The procedures shall provide for safe conduct of the work, including procedures and methods to provide necessary supports, lateral bracing and shoring when required, careful removal and disposition of materials specified to be salvaged, protection of property which is to remain undisturbed, coordination with other work in progress, and timely disconnection of utility services where required. The procedures shall include a detailed description of the methods and equipment to be used for each operation, and the sequence of operations. Demolition shall be carried out in a controlled manner taking due care of persons and property, and where practical in stages.
- 11203.2**
After each stage of demolition all debris shall be retrieved and removed from the Site unless required for subsequent incorporation in the Works or as specified or directed by the Engineer. Any debris which might present a hazard to safety or navigation shall be removed immediately after demolition.

11203.3

Any items required for subsequent incorporation in the Works shall, as may be appropriate, be marked for identification and stored so as to maintain its condition.

11203.4

All existing services to areas to be cleared or demolished shall be rerouted or stopped off as ordered or approved by the Engineer, or the appropriate authority, before demolition work commences. Existing utilities shall be removed as indicated. When utility lines are encountered that are not indicated on the drawings, the Engineer shall be notified prior to further work in that area.

11203.5

The amount of dust resulting from demolition shall be controlled to the maximum extent possible to prevent the spread of dust to occupied portions. The Contractor shall water the works to be demolished and debris to prevent dust arising.

11203.6

The Contractor shall remove any existing debris or wrecks as if they were part of the items to be demolished. The use of burning at the project site for disposal of refuse and debris may be permitted with previous authorization from the Engineer, except near the LPG (liquid propane gas) tanks, it will be the responsibility of the contractor for any damage occurring from this action. The use of explosives may be permitted with previous authorization from the Engineer, except near the LPG tanks, it will be the responsibility of the contractor for any damage occurring from this action.

11203.7

Protection of Personnel. During the demolition work the contractor shall continuously evaluate the condition of the structure being demolished and take immediate action to protect all personnel working in and around the demolition site.

11203.8

Protection of Existing property. Before beginning any demolition work, the contractor shall survey the site and examine the drawings and specifications to determine the extent of the work. The contractor shall take necessary precautions to avoid damage to existing items to remain in place, to be reused, or to remain the property of the Government.

11203.9

Trees within the project site which might be damaged during demolition, and which are indicated to be left in place, shall be protected.

SECTION 11300 DAYWORKS

- 11301**
General
- The total amount of the Dayworks Bill of Quantities as contained in the Contract, shall be deemed to form part of the Provisional Sum for Contingencies.
- 11302**
Dayworks / Labour
- 11302.1**
The cost of labour in dayworks is included in the Bill Quantities as a schedule of the labour containing a provisional quantity of working hours.
- 11302.2**
The rates for labour included in the schedule shall be understood to include wages, bonuses and all allowances, social benefits, overtime, traveling time, use of consumable stores, water, lighting, power, use and repair of stagings and scaffolding, workshops, stores, portable power tools, manual tools, supervision by the Contractor's staff and foremen, establishment charges, overheads and profit.
- 11302.3**
In calculating payments due to the Contractor for the execution of labour in dayworks, the time in hours will be measured, from the time of arrival at the job site to execute the particular item of daywork to the time of departure, excluding meal and rest periods. Only the types of labour directly doing work ordered by the Engineer and who are competent to perform such work will be measured. The time of gangers (charge-hands), actually doing work will also be measured but not the time of foremen or other supervisory personnel.
- 11303**
Daysoworks/ materials
- 11303.1**
The cost of materials in dayworks included in the Bill of Quantities as a provisional sum, shall be understood to be the net invoiced price of materials, delivered to Site.
- 11303.2**
The percentage rate included in the Bill of Quantities by the Contractor will be understood to include establishment charges, overheads and profit, namely:
- Costs related to the storage of materials including handling, delivering to job site, and waste in storage;
 - Contractor's management, administrative and financial arrangements;
 - Contractor's Equipment unless employed exclusively on dayworks;
 - Contractor's facilities and Temporary Works
- 11303.3**
In calculating payments due to the Contractor for the supply of materials used in dayworks, the Contractor shall be entitled to the approved net invoiced cost of the quantity of materials necessary to perform the daywork inclusive of delivery to Site. To this net cost will be added the percentage addition at the rate entered in the Bill of Quantities by the Contractor. Prior to ordering materials for use in dayworks, the Contractor shall provide competitive quotations for such materials to the Engineer.
- 11304**
Dayworks/ Contractor's Equipment
- 11304.1**
The cost of Contractor's Equipment in dayworks is included in the Bill of Quantities as a schedule of the equipment containing a provisional quantity of hours.
- 11304.2**
The rates for Contractor's Equipment included in the schedule shall be understood to include fuel, lubricants, consumables (e.g. electrodes, drillbits, blades, cutting discs and the like), repairs, maintenance, insurance and establishment charges overheads

and profit as described above. The cost of drivers and operators will be paid for separately under the item for daywork labour.

11304.3

In calculating payments due to the Contractor for the use of Contractor's Equipment in dayworks, the time in the units of the pay items in the Bill of Quantities will be measured, from the time of arrival at the job site to execute the particular item of daywork to the time of departure, excluding meal and rest periods, and any periods when the equipment is not available for use such as breakdown, repair or maintenance periods.